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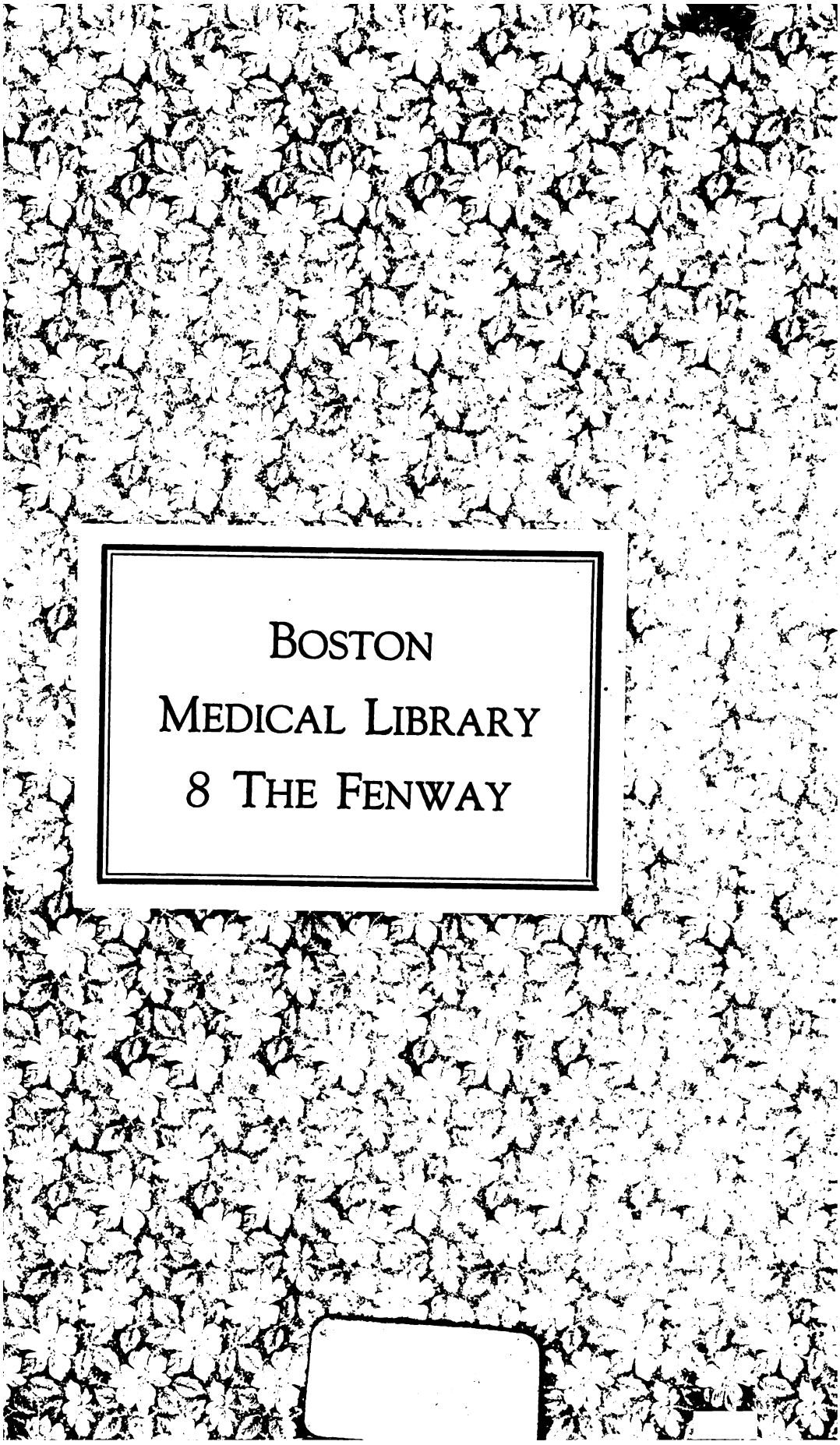
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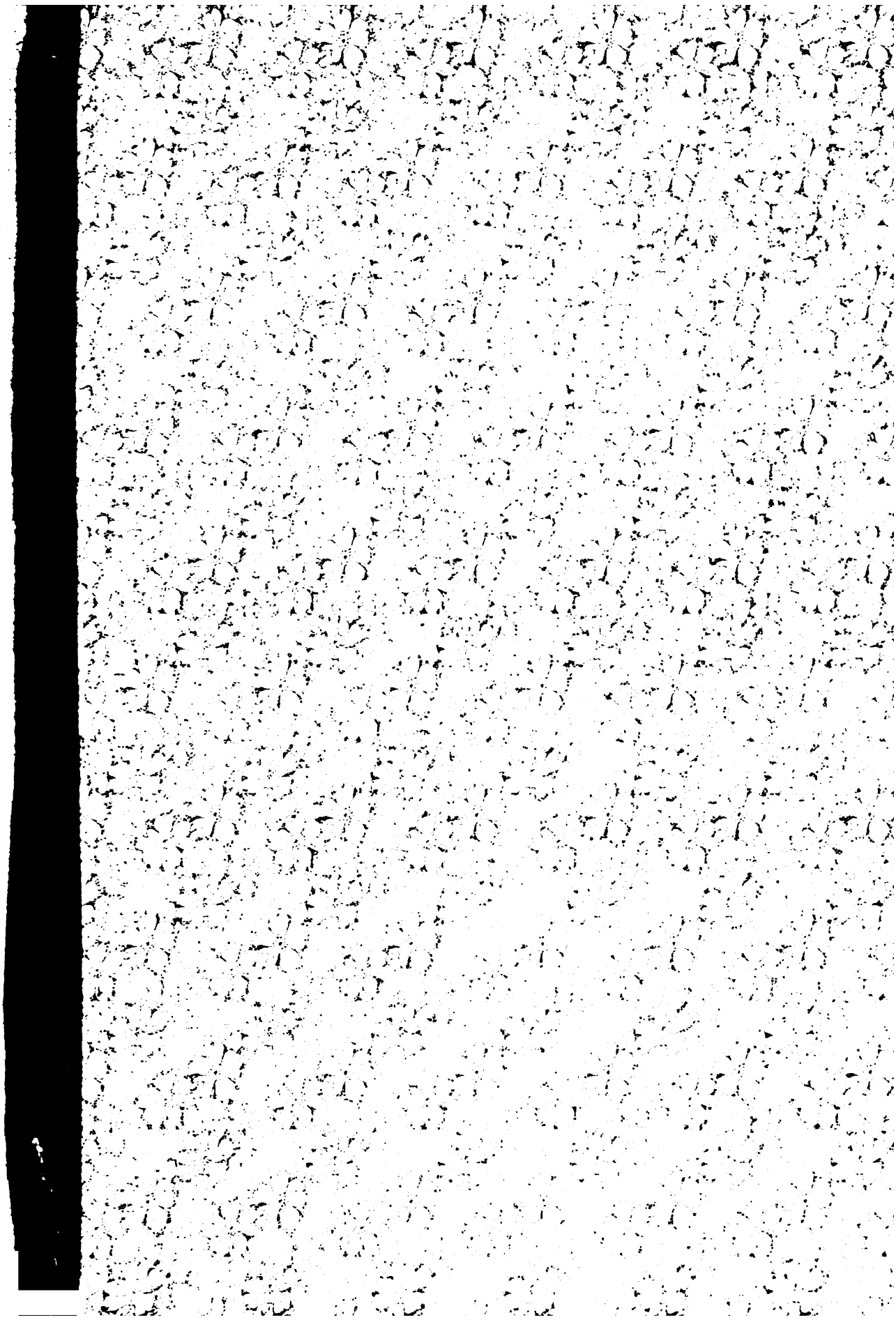

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Original Communications.

*LYMPHATIC AND PORTAL INFECTIONS FOLLOWING APPENDICITIS.**

BY JOHN C. MUNRO, M.D.

The group of cases that I wish to report, cases of infection of the retroperitoneal lymphatics and of the portal vein and its tributaries, originating in appendiceal inflammations, is one of great interest and importance to the general practitioner as well as to the surgeon. The latter is not likely to see these complications following appendicitis at so early a stage as the family doctor, and it is for the early interpretation of the symptoms that the surgeon must plead, in order that operation, if it can be of help, shall be undertaken before it is too late.

The infection of the retroperitoneal lymphatics I believe to be much more frequent than is commonly recognized—that is, an infection which has advanced far enough to cause marked disturbance or to require surgical intervention. We all know how serious the extreme cases of infection may be, as shown in abscesses about the diaphragm, pleura, and lungs. It is not to these but to

*Read, by invitation, Dec. 12, 1900.

the midway cases that I wish to call attention, the cases that make the old-fashioned perirenal abscesses, the sinuses in the loin or groin, or where the process, stopping short of abscess formation, makes the patient a chronic invalid. Furthermore, that such a lymphatic infection may break out at a time remote from all evidence of acute appendiceal trouble should be borne in mind and should not put the diagnostician off of his guard.

The diagnosis of a portal phlebitis is well recognized post mortem, and the pathology has been known for years; it is to try to assist in the more important recognition of the condition during life and early in its career that I shall report some of the cases that have helped me, more through my own blundering, to be on the lookout for these complications and to detect them. As I watch case after case of appendicitis I am sure that, more and more, I see evidences of either a lymphatic or a portal infection or both. An acute case, draining well, and in every other way on the high road to recovery, but with a persistent elevation of temperature, indicates to me, first of all, one of these infections. Of course, extraneous and independent complications in the chest, kidneys, pelvic organs, etc., must be first excluded. When with this failure to follow the usual course I find a spasm and tenderness, perhaps slight, in the region of the kidney, I regard it as strong evidence that the lymphatics are more or less seriously invaded. Frequently a few hot poultices will disperse the infection and the symptoms will disappear.

When the patient, however, has evidence of a more acute infection, as shown by chills, more or less jaundice, hepatic tenderness, and general malaise, I feel that we are dealing with a condition much more serious, and due to a portal infection. I am sure that occasionally I have seen a patient recover from a mild invasion of this nature; but on the other hand, when it once attains a certain limit the outlook is almost hopeless, certainly so without operation.

Moreover, whether there is palpable evidence of appendiceal trouble, present or remote, I have come to regard every case of hepatic tenderness in a septic patient, whether attended with jaundice or not, as a possible portal phlebitis until it can be proven to the contrary; this might be carried farther, in light of the difficulty, at times, of demonstrating an appendiceal origin when present, by affirming that one should regard any obscure septic hepatic infection as most likely due to an appendicitis. There are, of course, many other conditions that can simulate this one, but I believe that it is erring on the side of caution to hold the appendiceal origin always in mind.

The pathology of the retroperitoneal infection is well demonstrated in that most complete and satisfactory chapter on the pathology of appendicitis by Dr. A. O. J. Kelly in the second edition of Deaver's Treatise. He says that retroperitoneal abscesses "may also develop, although the appendix be situated intraperitoneally, if the perforation occur into the mesoappendix. Under such circumstances the liberated infectious material dissects its way between the two layers of the mesoappendix, and finally reaches the connective tissue where the abscess originates. It is also quite likely that, in the absence of perforation, some retroperitoneal abscesses may be produced by virulent infectious material being carried by the lymphatics of the mesoappendix to the retroperitoneal connective tissues."

It is to the latter mode of infection that I wish to draw attention rather than to direct perforation of an already existing abscess through the subjacent posterior peritoneum; the latter form and the posterior infection due to an appendix originally situated retroperitoneally is, perhaps, more common in the experience of all of us, and one must confess that clinically it is at times impossible to differentiate between the various methods of invasion. To-night I wish to emphasize merely the clinical side of the picture without going into the literature or the pathology of this class of cases.

To illustrate the retroperitoneal type of infection I will briefly report some of the most characteristic cases that I have seen.

Case I.—A physician had had several well-marked attacks of appendicitis and was constantly complaining of soreness and tenderness. A twisted chronically inflamed appendix was removed and the wound closed. The condition of the appendix did not seem to account for the severity of the symptoms. Convalescence was smooth and uneventful, the pulse and temperature being normal for a fortnight, when without warning the patient developed high fever, spasm, and tenderness in the loin and to outside of the scar. Under ether, a short incision was made alongside the scar to explore its deeper portions without disturbing the sutures, and everything was found aseptic. A second opening was made farther back in the loin into the

retroperitoneal cellular space, and an active lymphangitis with a little pus was found entirely behind the peritoneum and without any connection with the abdominal cavity. Under drainage the trouble rapidly cleared up. Infection may have taken place at the time of the first operation, but the tissues most likely to show such infection, the line of the wound and the peritoneum, were healthy, and, in the light of other cases, I have felt that he for a long time had had lymphatic infection from his constantly recurring attacks of appendiceal inflammation which finally manifested itself in this way.

To demonstrate this better let me briefly mention a case that I saw with Dr. George E. Brewer, of New York, which he has reported in detail in the *Annals of Surgery* for September, 1898.

Case II.—A man, fifty-six years old, early in a first attack of acute appendicitis had the organ removed, the abdomen being closed without drainage. Some pain and vomiting followed for a day or two, but otherwise the convalescence was fairly satisfactory, until about a month later, when pain in the side and malaise appeared. These symptoms disappeared after rest, only to reappear again and again on slight provocation. The temperature was almost constantly a little above normal. This continued for nearly three months. At the second operation there was spasm, and a mass in the right loin extending nearly to the median line and to the iliac crest. Râles, which a short time before had been heard at the base of the right lung, had disappeared. The patient looked slightly septic. An anterior incision showed no active intra-abdominal inflammation, but behind the peritoneum an indurated mass could be felt lying in the region of the retroperitoneal lympathics. A posterior opening showed a small abscess lying in the midst of the mass of induration, which was curetted and drained. Steady and permanent recovery followed. Here the infection undoubtedly began at the time of the original acute attack and persisted until relieved by the free posterior drainage.

Case III.—Last spring I saw a case with Dr. Moir, of South Framingham, in a young farmer whose appendix had been removed about ten days after the beginning of one of several attacks. Very little acute trouble was found in the abdomen; a few tough adhesions, but no abscess. The appendix was removed and the wound partly drained. Following operation, chills, septic temperature, and sweating had continued. When I saw him the wound and the abdomen were negative, but in the flank were tenderness and spasm. An incision in the back showed a large retroperitoneal abscess entirely separate from the abdominal cavity and evidently originating from the lympathics.

Case IV.—Another case of less definite origin illustrates the likelihood of an appendix being the source of a severe perirenal abscess. A woman, fifty years of age, was seen with Dr. Ham, of Dover, with a history of progressive illness and tumor in the right loin for about two months. On cross-examination it was found that she had suffered for several years from attacks of pain in the region of the appendix, not severe enough to confine her to her bed, but causing soreness, tenderness, and malaise; apparently, repeated attacks of mild appendicitis. When I saw her she was yellowish and septic looking, nervous and feverish, and somewhat emaciated. There was induration along the iliac crest, merging into a mass in the upper portion of the iliac fossa and toward the region of the kidney. Incision into the retroperitoneal space revealed a large abscess cavity full of foul pus containing streptococci in pure culture, entirely behind the peritoneum, and so far as could be determined, originating in the lymphatics. Under drainage she soon recovered.

That a retroperitoneal infection can lie dormant for a long time is shown by the following case, although there was every reason for an acute flare-up at any time.

Case V.—In November, 1897, I operated for acute appendicitis in a healthy girl, fourteen years of age, on the sixth day following the onset of symptoms. A gangrenous appendix lying in the iliac fossa and a secondary abscess in the pelvis with a gangrenous tube were found. Satisfactory recovery followed under drainage, and the patient had returned to school apparently as well as ever, except that she noticed that she was apt to have some pain in the right thigh if she ran up a flight of stairs. Eighteen months after operation pain reappeared in the right iliac region with tenderness and spasm. Careful examination showed that the tenderness and fulness hugged close to the iliac crest and extended toward the loin, but without any evidence of a peritonitis. Not daring to ignore the possibility of an intra-abdominal infection, a very small opening was made through the rectus to the inside of the scar. The peritoneal cavity showed no evidence of

disturbance, but behind the peritoneum in the groove between the psoas and iliacus was an abnormal swelling. The abdomen was closed, and through another incision close to the crest, into the retroperitoneal space, the peritoneum was pushed forward until a small cavity containing stinking pus and a small concretion was opened and drained. Evidently the concretion, not detected at the first operation, had perforated the posterior peritoneum and quietly lain there for a year and a half before causing the secondary retroperitoneal infection.

CASE VI.—Two days later a strikingly similar case came under observation, and though there is lacking the positive evidence of operative proof of a retroperitoneal lymphangitis, the clinical evidence is so strong to my mind that the case will bear reporting. A healthy boy, ten years old, was seen ten days after the onset of an acute appendicitis. A foul superficial abscess cavity with a gangrenous appendix was found and drained. Rapid and satisfactory recovery followed, and the boy went back to his sports and to school as well as ever. Ten months later, after a game of baseball, he had an attack of malaise and abdominal pain. He steadily grew worse, and when I saw him again he had a high temperature and rapid pulse and looked very septic, but not peritonitic. Examination showed a marked tenderness and spasm in the right flank without evidence of any intra-abdominal trouble. Lumbar incision was urged, but was refused on the advice of an irregular practitioner, who was in charge of the case. The boy slowly recovered, however, after a serious illness, and was around again apparently as well as ever. Since then, eighteen months after my last visit, he has had two similar attacks, in the latter of which, about two months ago, he was so ill that his life was despaired of for several days. The irregular in charge still refuses to consider any operative measure and relies on the boy's ability to fight sepsis. Clinically there has never been any question in my own mind that there is a persistent retroperitoneal lymphangitis, originating at the time of the acute appendiceal infection, which he has been able to overcome in the old-fashioned way—a risk that it is unjustifiable to take.

CASE VII.—A somewhat similar case, showing the ability of a patient to overcome sepsis here as well as elsewhere, came under my observation at the Boston City Hospital. The patient, a man twenty-six years old, was operated upon by Dr. Burrell for a severe appendicitis; this was followed by a fecal fistula, which closed spontaneously at the end of three months. Two weeks later the fistula reopened and then closed for a few days, only to again reopen after a chill and high fever. In a few days a definite, tender mass could be felt in the loin, and the patient continued to have marked febrile temperature and pulse, although there was no evidence of any lack of free discharge from the abdominal sinus. For various reasons an operation was inadvisable, and under poultices and liberal diet the cake in the loin slowly disappeared, and the temperature fell to normal, the fecal fistula finally closing at the end of a month. There has been no return of symptoms, now over two years.

From rough clinical data, by no means as accurate as they should be, I am strongly inclined to believe that cases of appendicitis, both before operation and after thorough drainage, that exhibit either marked hyperpyrexia or persistent elevation of temperature have a more or less extensive lymphatic infection, either from an appendix originally retroperitoneal in position, or from direct or indirect septic invasion from an intraperitoneal, inflamed appendix. The ordinary acute case of appendicitis does not have a persistent high temperature, especially after adequate drainage, and in many of these a careful examination will show fulness, tenderness, and spasm in the right loin. A case illustrative of this came to my care recently.

CASE VIII.—A little girl with a very severe type of acute appendicitis was operated upon by my colleague, Dr. Lund, and the abscess thoroughly drained. The temperature fell somewhat, but continued steadily above normal in spite of the proper drainage. Soon a spasm and tenderness in the loin were detected, and under ether I explored the retroperitoneal space. Here I found a double chain of enlarged glands, each about a half-inch in diameter, one of them being surrounded by granulation tissue, but without any definite abscess. Of course the operation was of no benefit. The pulse and temperature continued above normal for a while and gradually fell under abundant feeding, sunlight, and good care. Here the lymphatic infection must have extended far beyond the region of operation, the patient being able to overcome the general infection before the glands softened down into pus. We find an

exactly similar condition in the lymphatics elsewhere in the body, and although it is very evident that a good proportion of such retroperitoneal infections may subside under general systemic treatment, it is better in cases of doubt, or where there is evidence of purulent softening, to make a small incision and drain.

To recapitulate, an exaggerated febrile condition before operation and a persistent one after drainage should suggest a lymphatic infection beyond the ordinary, whether due to an appendix originally retroperitoneal, to an abscess that has already perforated the posterior peritoneum, or to a lymphatic infection pure and simple following an intra-abdominal abscess.

Portal Infections.—Another complication secondary to appendicitis that is not so very uncommon is portal pylephlebitis with abscess of the liver. Its pathology is well understood and need not be discussed here. Its clinical history is often very obscure, and of intense interest, and although it is one of the gravest of the sequelæ that we have to deal with, I believe that it is not necessarily always fatal.

Dr. Henry Jackson has reported in detail, in the *St. Paul Medical Journal* for 1899, ten cases definitely due to an appendicitis; in addition to two cases seen with Dr. Jackson, and to which I will briefly allude, I will report several more illustrative of the clinical signs.

CASE I.—The first case of which I have notes was operated upon in August, 1896, for an acute appendicitis, one of several attacks, and drained in the usual way. The temperature fell to normal in about seven days—that is, later than would be expected—and the sinus was closing rapidly, when between two and three weeks from operation the patient became ill, with rise of temperature, malaise, and vomiting, followed by chills. The spleen was enlarged. The chills and vomiting continued, and various infections, malarial, gonorrheal, from endocarditis, etc., were considered and ruled out. About two weeks from the beginning of the secondary trouble, pain and tenderness were noticed under the right costal border. These increased, and in a few days the liver was explored through an incision in the right hypochondrium. The peritoneal cavity was found normal except for a swollen right lobe of the liver. The latter was explored twice with a trocar, with negative results. The pleura was also explored through the sixth space, with negative results. The abdominal wound was closed, and on the seventh day it was found clean and aseptic, but on the eighth day it opened spontaneously, discharging much foul pus and bile. Marked improvement followed for a week, when he had a severe relapse of the chills, accompanied by cough and foul expectoration. This was again followed by a fresh outflow of pus and bile. The pulmonary symptoms continued, together with a profuse hepatic discharge, but gradually improvement set in, and by the middle of November, two months after the original operation, he was practically well, and has continued to remain so up to the present time, four years later. He was by far one of the severest cases of illness that I have ever seen recover; the good nursing in this case deserving all possible credit.

A year later I saw a case with Dr. Jackson, and reported by him, which was very instructive.

CASE II.—A man, twenty-one years old, had recovered from an attack of acute appendicitis without operation three years before. He remained well up to a few days before entrance to the hospital, when he suffered from an attack, apparently, of appendicitis, followed by sweating, chill, headache and delirium, and other signs suggestive of meningeal disturbance. The local signs of appendiceal trouble cleared up, but he developed a jaundice and loss of flesh, while the chills persisted. At this time I saw him with Dr. Jackson, and on the basis of a probable diagnosis of abscess of the liver, aspirated without finding any pus. At this time there was a leucocytosis of 19,000 and the appendix symptoms were in abeyance. No improvement followed, and at autopsy, ten days later, a gangrenous appendix was found, a septic thrombus and pus in the portal vein and its tributaries, together with abscesses in the liver. I did not realize nor appreciate the relative importance of his earlier appendiceal symptoms when I saw him; had I done so, and operated at once, draining the iliac abscess and freely draining the liver, the outcome might probably have been different.

Eight months later I again saw a case with Dr. Valentine and Dr. Jackson in which an appendicitis was strongly felt to be the origin of hepatic abscesses, but we could find no evidences before death to warrant an exploration.

CASE III.—A man, thirty-eight years old, had lost flesh for a year past. Two weeks before I saw him he had general abdominal

pain, vomiting, and diarrhea. Then followed irregular chills, coming on every day or two, later increasing to one or two daily. There were emaciation, jaundice, enlarged spleen, a lax abdomen without tenderness, except over the liver, which was somewhat enlarged. Careful examination in the region of the appendix failed to show any evidence of trouble there. Unfortunately a rectal examination was not made. Exploration was advised if improvement did not result from forced feeding, stimulation, etc. The patient did improve unfortunately, the liver decreased, and the jaundice and chills abated until seven days later, when there was a severe relapse, and the patient growing too ill to warrant interference, died. Autopsy showed an enlarged liver with wide-spread purulent infiltration, no general peritonitis, but adhesions in the right iliac fossa surrounding an adherent, friable appendix with a few drops of pus.

In looking back to this case, I can see no excuse for not operating, even though no evidence of an appendicitis was obtainable. To be sure the process had advanced so far that recovery would have been doubtful. As it was, we did not feel justified in exploring without a more definite knowledge as to the causation than could be obtained without opening the abdomen. Nowadays there would be no hesitation in urging an exploration.

Diagnosis is not always easy when one has definite knowledge of the probable origin, as shown in the following case that I saw with Dr. Burrell:

Case IV.—A man, forty-two years of age, was operated upon in Dr. Burrell's service for acute appendicitis, the wound being drained and the appendix not being found. Locally, the progress of the case was satisfactory, but between two and three weeks after operation the temperature became irregular with wide variations, and there was a leucocytosis of 15,600. At times the temperature would remain normal for twenty-four hours, then shoot up to 104°; there was increasing pallor, loss of flesh, and apathy. Five weeks after operation, the leucocytosis fell to 9800, but owing to some resistance in the right hypochondrium the liver was aspirated, with a negative result. Soon chills began to appear, with leucocytosis and jaundice, which lasted only a few days, followed by pallor. The patient steadily grew weaker, abdominal distention that had been slowly coming on increased, and he died two months after operation. Autopsy showed the appendix, cæcum, and ileum bound together and overlying a small abscess. The retroperitoneal lymphatics were enlarged, several being softened; numerous abscesses in the liver; acute suppurative pylephlebitis; acute renal phlebitis, etc.

That cases of portal phlebitis may be confounded with cholecystitis is shown in a case that I recently saw with Dr. Thorndike and Dr. Nichols.

Case V.—A man, thirty-eight years old, had suffered several years from indigestion. Eight months ago he had had an attack of appendicitis, recovering without operation. Three weeks before entrance to the hospital he had an attack of pain in the region of the appendix, which soon shifted to the right hypochondrium. For two weeks he had been jaundiced. At entrance there was a leucocytosis of 39,000, with jaundice, and a localized area of extreme tenderness over the region of the gall-bladder; elsewhere the abdomen not being especially tender. On the following day he had a chill, which was repeated on the two succeeding days, when Dr. Nichols operated for a cholecystitis, finding adhesions of the parietes, intestines, and liver, and a thickened gall-bladder which contained a viscid mucus, like inspissated bile. The liver itself was dark, somewhat congested and enlarged, but no abscesses were noticed. The patient did not improve after operation. Closer examination shortly after this, that revealed appendiceal tenderness both on abdominal palpation and rectal examination, together with the history of his preceding attack of acute appendicitis and several attacks of probable subacute appendicitis, led to the diagnosis of a portal phlebitis with hepatic abscesses, which was confirmed at a partial autopsy a few days later. In this case the true condition could be determined only after the more rational diagnosis of an acute cholecystitis had been ruled out by operation.

Finally, to illustrate the possibility of making a diagnosis, I will report a last case of a young girl, seventeen years of age, who entered the hospital with a history of sudden, sharp umbilical pain, coming on ten days before, with vomiting that had lasted for two days. There was also moderate diarrhea. Four days before entrance there was dull continuous pain in the hepatic region followed by chills and sweating, and a leucocytosis of only 9000. A tumor without tenderness could be felt below the costal margin on the right,

and the enlarged spleen was palpable on the left. The chills persisted; tenderness and spasm over the liver developed, with doubtful jaundice. There was nothing to call attention to the appendix until deep pressure was made, when one found distinct local tenderness without involuntary spasm. On that basis, and from the fact that she was growing worse, I operated, opening the abdomen over the liver, and found on the upper surface of the right lobe several groups of small abscesses, which were freely opened and packed with gauze. No large, deep cavities were found. Investigating the region of the appendix, I felt enough to warrant a second incision, which exposed a foul, stinking abscess cavity, which was drained. Two days later the appendix wound was sweet and clean and required only a small wick; from the liver, pus with a foul odor was discharged on removing the packing. On the third day the patient, who had been doing well, suddenly grew worse, with high pulse and temperature, and died on the fifth day after operation. No autopsy could be obtained.

As deductions, and to aid in discussion, I will offer the following suggestions:

1. That the retroperitoneal lymphatics are probably always infected to some extent in inflammation of the appendix, the degree of the infection not necessarily depending on the extent of the appendiceal inflammation; a mild, chronic appendicitis at times giving rise to a severe lymphangitis.

2. That the lymphatic disturbance may date its origin from an appendicitis occurring many months beforehand.

3. That a lymphatic infection severe enough to warrant local treatment is rare when compared with all the cases of appendicitis, but that such an affection is probably more common than a portal infection.

4. That mild infections of both the lymphatics and of the portal system may yield to medical treatment.

5. That persistent fever, without other evident cause, should suggest one or both of these infections.

6. That spasm, tenderness, and later fulness, in the right loin should indicate a retroperitoneal infection from some source or other, possibly due to an appendicitis, though due in many cases to renal, hepatic, pleural, or other lesions.

7. That chills and hepatic tenderness, associated at times with jaundice, may be of appendiceal origin, and that this origin, especially in obscure cases, should be sought for most carefully in physical examination, in the personal history, and, if necessary, in abdominal exploration.

8. That drainage in the loin gives prompt and satisfactory relief where pus or even a diffuse cellulitis has formed.

9. That prompt and thorough drainage of the liver, together with removal of the inflamed appendix, offers the best means for recovery from septic infections of the liver.

10. That aspiration of the liver is an imperfect, unsatisfactory, and unsurgical procedure. Abdominal section with definite, free exploration of the liver and free opening of all abscesses within reach is far more satisfactory, not difficult, and less dangerous than aspiration.

THE REAL VALUE OF QUININE IN LABOR.

By M. H. Fussell, M.D.,
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In the *University Medical Magazine* for October, 1889, I reported a number of cases of labor in which I had used quinine to hasten and increase the delayed pains. I concluded that article as follows: First, that in multiparæ where labor is delayed on account of uterine inertia, quinine in fifteen-grain doses will hasten it; secondly, that in primiparæ the drug is of much more uncertain value.

In the eleven years that have elapsed since that article was published I have used quinine where the pains were slow and inefficient, and where the delay was due to simple inertia. I have practically never found the drug to fail in its expected action.

These facts have suggested the writing of this article: First, because of my own continued success with the drug, and the certainty of its value; secondly, because of the fact that recent writers in obstetrics either ignore its value or deprecate its use; thirdly, because writers on therapeutics still advise its use; fourthly, because the drug has certainly fallen into disuse by the general practitioner.

In 1874 Dr. Alfred Smith, of Philadelphia, read a communication before the College of Physicians, in which he concludes: "(1) That quinine has no inherent property of stimulating the gravid uterus to contraction, being inert as to any effect upon the womb in a quiescent state, and having no decided action in accidental labors at any period of

gestation. (2) That to its property as a general stimulant and promoter of vital energy and functional activity, and to that alone, is due its influence upon the uterus in normal parturition, producing then no action peculiar to itself, but merely increasing the power of the uterus to expel its contents by its own natural method, converting what is a defective or even pathological action into a simple physiological process. (3) That by availing ourselves of this power, we may by administering full doses of the sulphate of quinine at the onset of labor favor the rapid and safe termination of what might otherwise be a tedious and exhausting work."

Fordyce Barker, of New York, was the other teacher of his day who enthusiastically indorsed the use of quinine.

Following the lead of these two eminent teachers, quinine was much used by practitioners in Philadelphia and New York. Of late years for some reason the drug is scarcely if ever used. Hirst, in his work on obstetrics, says that his experience does not warrant him in recommending the drug, and that in certain cases it is the cause of severe postpartum hemorrhages. I have taken the trouble to consult a large number of the text-books on obstetrics in the library of the College of Physicians of Philadelphia, and find that the vast majority of authors do not mention the drug. I did not find it in a single French or German author. Those who do mention it give but a few words to its consideration, except Harris in Playfair and Cameron in Jewett's System. Lusk quotes Alfred Smith as above. My own experience with the drug has been so gratifying that I am forced to believe that its abandonment has been due to carelessness in its use and to the fact that as new teachers have come on the stage they have lost sight of the value of the drug, and their students have followed in their footsteps. Curiously, probably all the works on therapeutics recommend the drug in uterine inertia. Inquiry among my acquaintances makes certain that quinine is practically never used at the present time by the practitioners in this locality for its effect upon an inert uterus. So frequently have I used the drug, and so uniform is its action under certain circumstances, that I am often able to time exactly the period of rapid expulsive pains. I will not quote the numerous cases, over one hundred, in which I have used quinine, for they would be a simple repetition of the same tale. One, however, occurred while this article was under preparation which so exactly represents this class that I will give it in brief.

Mrs. K. called me at 8 P.M., giving a history of vague pains all day. Examination showed an os the size of a dollar. While I remained in the house, pains occurred every fifteen minutes (actual time). The patient lived close to my office. I ordered sixteen grains of quinine to be administered at 9 P.M., saying I would return at 9.30. At 9 45 I reached the house, and found that pains had been recurring every few minutes and were severe. The os was fully dilated; the membranes ruptured at my first examination, and the child was born about 10 P.M.

This case has been repeated a score of times in my experience. What promised to be a tedious and exhausting labor, because it was tedious, was converted into a simple short period by the use of quinine.

Another case deserves mention. I was called to see a woman who had been having pains during the early part of the day. The os was well dilated, but no pain occurred for half an hour after I entered the house. I administered fifteen grains of quinine, and in half an hour pains began. In one hour labor was in full progress and speedily terminated

In cases where painful contractions of the uterus occur, but where there is no effect upon the os, quinine is valueless. This is shown by the following case: Mrs. B. had been suffering for three or four days from irregular pains in the uterus. The os was rigid, showed no evidence of softening or dilatation. Quinine was administered with absolutely no effect. Morphine caused a cessation of the pain, but labor did not occur for a period of two weeks.

In regard to Professor Hirst's serious objection that quinine administered to certain susceptible individuals will precipitate a severe postpartum hemorrhage, I can but say that such an occurrence has never happened to me. On the contrary, it has appeared that the leakage after labor is decidedly less following the use of quinine than when it is not given. This was especially noticeable in the case of a woman whom I have attended in five labors. Her first two labors were conducted by another practitioner. The second labor she told me was prolonged over thirty-six hours, and there was considerable hemorrhage following it. At the third labor, the first in which I attended her, she took quinine, with the usual result of prompt and efficient action. There was absolutely no

hemorrhage following the birth of the child. These same conditions have obtained in each of the following labors.

Dr. Smith in the article above quoted says: "Several of the patients had had flooding under my care previously, some of them habitually, and some stated that they had always had a profuse and weakening flow in all their other labors. In the whole forty-two I had *not one* case of flooding."

In primiparæ the drug in my hands has not been as useful as in multiparæ. It would appear that the cause of this is that the slowness of the labor is not so much the lack of nervous force in the individual as the failure of the head to engage and press against the os early as it does in the normal multipara.

The result of the administration of quinine in a case of uterine inertia is the appearance of strong intermittent quickly recurring uterine contractions, exactly resembling normal labor pains, and entirely different from the tonic contractions brought about by ergot.

For some reason cinchonism has not occurred in these cases.

I would strongly urge, then, that quinine should be used in all cases of multiparæ, where labor has actually begun, and where the pains are slow and ineffectual and the os fairly well dilated. In fifteen minutes to half an hour the pains will increase in frequency and strength. If there is no obstruction the labor will be speedily terminated.

The employment of the drug will frequently obviate the use of forceps in uterine inertia. Necessarily it should *not* be used, and valuable time lost, where the failure of the head to engage is due to malpositions or to some disproportion between the sizes of the head of the child and the pelvis of the mother.

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*MEDULLARY NARCOSIS.**

By W. L. Rodman, M.D.,
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The recent publication of a complete and classical review of the subject of regional anesthesia, by a distinguished member of this society, Professor Matas, would make it a work of supererogation in me to go at all into the history and literature of the subject of subarachnoid injection of cocaine and other agents. The ground has been so thoroughly covered in the paper referred to, that any one else must necessarily repeat what has already been said in the best possible way. I have, therefore, decided to write only a short paper simply for the purpose of introducing this important subject for general discussion; knowing that many here have used it, and possibly have not yet published their experience.

There are certain practical details that we are all interested in, and upon only a few of them have opinions as yet crystallized. I shall, therefore, take up the points of most practical value, and briefly discuss them.

1. Will medullary narcosis displace ether and chloroform in operations below the diaphragm? No one, I take it, however optimistic he may be concerning this new method of producing analgesia, could think for a moment of abandoning ether and chloroform. I myself am firm in the conviction that these trusted agents will continue to enjoy our confidence, and that the Corning-Bier method will be held in reserve for certain cases where there is seemingly a clear contraindication to chloroform and ether. Knowing the dangers of these agents we have for years wished for something else to use in their stead upon certain occasions. Ether is clearly contraindicated in old people with bronchial, pulmonary, and renal disease. It is also unsafe in conditions of arteriosclerosis. Chloroform is decidedly unsafe in fatty, dilated, or weak heart from any cause; and while valvular disease is not so positive a contraindication to its use, all of us feel uneasy when compelled to administer it in such conditions. Have we in medullary narcosis a safe channel between Charybdis and Scylla? After carefully reviewing all reported cases to date, with my own limited experience, I am led to think that while safer in the conditions we have mentioned than ether and chloroform, there is still some danger in the new method. So the channel is only a better one — not perfectly safe. It will take the experience of another year at least to set us right, and to teach us better than we now know the exact status it is to fill in general surgical work.

2. It should, then, be given to subjects suffering from bronchial, pulmonary, and renal diseases; to patients affected with fatty or dilated heart, and cardiac diseases

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in general. It may also, in my judgment, be given to old people where the shock of general anesthesia is oftentimes so great, and from its action in one case I believe it to be safer than either chloroform or ether in drunkards.

3. The place where the spinal canal is entered is of some importance. Tuffier, Murphy, Matas, and others having the largest experience with this treatment, have preferred the fourth lumbar interspace. Any of the lumbar spaces can be punctured with safety; the fifth interspace between the last lumbar and the first sacral vertebra being in some respects the easiest route. We should always remember that the spinal cord proper terminates at the first lumbar vertebra; so that in puncturing below this point we stand in danger of injuring only the cauda equina and not the spinal cord itself. While Tait and Caglieri have found the sixth cervical interspace an available and satisfactory route, I should hesitate to puncture so near the medulla. Furthermore, the reports of Tait and Caglieri lead one to believe that the anesthesia is by far less complete and satisfactory than when low puncture is made.

4. Under this heading we will consider the primary dangers of simple puncture without injection. Since 1890, when Quincke first demonstrated the feasibility of withdrawing cerebrospinal fluid by lumbar puncture, it has been done in hundreds, nay thousands, of cases. Even when done for diagnostic purposes there is a certain amount of danger, as by so doing the nice balance and perfect equilibrium which normally exists between such delicate structures as the brain and spinal cord with their membranes and fluid is, for the nonce, interfered with. A small number of such cases have died immediately, or so quickly that death could not have been due to other causes. Bier himself had very unpleasant symptoms after simple puncture in his own person. Having escaped the immediate dangers of puncture for diagnostic purposes, viz., shock, asphyxia, etc., such after symptoms as nausea, headache, delirium, and insomnia have usually passed away, leaving no unpleasant symptoms behind.

5. It has not been shown that secondary changes either inflammatory or degenerative have taken place in either membranes or cord leading to chronic disease. Theoretically one might fear some form of sclerosis. Considerably more operative work has been done upon the brain than on the spinal cord, and we naturally infer that what results from traumatisms of the former may occur in injuries to the latter. The brain and its membranes are very tolerant of operative interference, and it has not been shown that persons thus treated are more subject than others to cerebral affections. We are, therefore, in a measure justified in assuming that simple puncture of the spinal cord, if aseptically done, is unlikely to be followed by serious changes in the cord or its membranes.

6. If we add to simple puncture the injection of some chemical substance by which anesthesia is produced, a new element of danger is undoubtedly added. Therefore, the choice of a local anesthetic becomes of paramount importance. It has been shown that anesthesia will follow the injection of many agents into the spinal canal. Cocaine, however, has been used far more than all other substances combined. We know, at the outset, that this agent, the most certain of all in its anesthetic effect, is difficult to sterilize, as it cannot be boiled without impairing its anesthetic properties. Raised to a temperature above 180° F., it is decomposed into ecgonin and becomes comparatively inert. Some, however, think it can be boiled and then introduced into the spinal canal without impairing its anesthetic properties. By raising it to a temperature of 180° F., and repeating this twice, thrice, or even six times, as recommended by Tuffier, it should be sterile and therefore safe. Eucaine can be boiled, and on theoretical grounds has been preferred by a few. In the hands of nearly all who have used it, it has been in a measure disappointing, and has not taken the place of the more reliable agent cocaine. Antipyrin, nirvanin, morphine, etc., have also been used with only reasonably satisfactory results.

7. The dose, or amount injected, is of the very greatest importance. Bier and Tuffier began by using thirty minims of a two per-cent solution of cocaine. Both have found this dose too large, and likely to be followed by marked symptoms, such as shock, collapse, free diaphoresis, nausea, rapid pulse, embarrassed respiration, and so on. They both now look upon this as a maximum dose, recommending half the amount, or about one third of a grain of cocaine, as the usual dose. The concentration of the solution is also of importance, as it would seem that a small dose of a two-per-cent solution is better than a larger dose in greater dilution. I

have reduced the number of minims of a two-per-cent solution each time I have practiced this method, and thus far have not failed to get complete analgesia. I first injected 18 minims, in my second patient 17, in the next 16, and hope to reduce the amount to 10. In my judgment this is of great importance, as we should aim to get complete anesthesia with the smallest amount of the drug.

8. The primary and secondary effects of an injection of cocaine into the spinal canal are those of simple puncture exaggerated. Shock is increased; headache, restlessness, delirium, and other symptoms are necessarily more pronounced. Tuffier lost one patient in 125 operations, death taking place quickly from asphyxia. Roumanian surgeons, with whom this new method has had extensive trial, look upon it with misgivings, as several deaths (at least two) have occurred as the result of spinal cocainization. This much is certain: primary danger, while not great, still exists, as a limited number of cases will die from asphyxia, shock, etc. We are, too, already hearing something from pathologists and specialists in nervous diseases about the possible scleroses of the cord that may follow this method of treatment. It remains to be seen whether their forebodings are justified. I cannot think that the simple introduction of a sterile fluid will increase what might be called the secondary dangers, and they will probably be no more frequent than has been encountered after simple puncture for diagnostic purposes. Experiments upon dogs and other lower animals bear out this view, as they have been killed long after the injection, and their spinal cords and membranes carefully studied for histopathologic changes, with negative results always.

9. How shall we sterilize the agent chosen to produce anesthesia? No substance should be chosen that cannot be either boiled or raised to such a high temperature as to destroy ordinary pathogenic organisms. Chemical disinfection is out of the question.

10. The method of injection is also of great importance. The fluid should be thrown in very slowly, at least one minute being consumed. It is, moreover, advised by nearly all that the needle be kept in position two minutes longer. This was first insisted upon by Bier, and the injunction has since been repeated by Tuffier and others. This is done to prevent the cerebrospinal fluid from flowing out at the point of puncture before complete distribution of the cocaine has taken place, and its absorption at least partially advanced. The fluid should be injected warm, which is easily arranged by putting the ampullæ in warm water for a few minutes before use.

11. The length, size, shape, and composition of the needle are of great importance. It should be at least three inches long, of small diameter, with a very sharp point, and short bevel. If the bevel is long the fluid may escape into the extradural space. The best needle is made of a composition of iridium and platinum. Steel is more likely to break and rust (inside and out), and it cannot be sterilized in a flame. The iridoplatinum needle can be sterilized in an open flame, does not bend too much, and yet enough, and is not easily broken. The syringe should be entirely of glass, so that it can be boiled. Its transpareney makes it superior to metal, enabling the surgeon to see whether or not the fluid is being introduced.

12. *Technique.*—The patient is first blindfolded and his ears filled with cotton to avoid psychic pain. The operative field should be treated in the most approved aseptic and antiseptic way before spinal puncture is undertaken—not only the point of puncture, but every part of the back that the surgeon's hands may accidentally come in contact with. The patient should be in the sitting position. The spine of the fourth lumbar vertebra being located, the thumb of the left hand is placed there. This may always be recognized by a line drawn from the crests of the ilia, which will pass through the spinous process of the fourth lumbar vertebra. The patient is asked to bend forward, placing the hands on the thighs, or folding his arms; or assuming an exaggerated "scorching position." By this means the interspace is increased very much, and the passage of the needle between the laminæ greatly facilitated. It traverses, of course, skin, cellular tissue, lumborum muscles, and meninges. The puncture is made either to the right or left of the spinous process, one-third of an inch either to right or left of the median line being the point of election. The surgeon soon recognizes that the point of the needle is in a cavity by the lessened resistance in front, and usually he will be made certain of its position by the escape of cerebrospinal fluid drop by drop. The injection should never be made until this positive assurance is had. If the operator is sure that the needle is in place, and yet spinal

fluid does not escape, he may attach the syringe and gently aspirate, in this way starting the fluid. Of course, perfect anesthesia will not follow if the injection be made before the escape of cerebrospinal fluid. The needle having entered the subarachnoid space, as evidenced by the escape of its fluid, the cocaine should now be slowly injected at a temperature similar to that of the blood, or normal cerebrospinal fluid, as less shock will be given by so doing. After three minutes from the beginning of the injection the needle is withdrawn and the puncture immediately covered with iodoform collodion. The iodoform used should be crystals (never the powder) which have been sterilized in 1-to-500 bichloride of mercury. A pad of sterile gauze is placed over this and secured by adhesive strips. Anesthesia will be complete nearly always in ten minutes, sometimes as early as five or six, rarely as late as fifteen.

"COLD IN THE HEAD:" HOW IT MAY BE AVOIDED AND HOW TO TREAT IT.

By George C. Stout, M.D.,
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Cold in the head is an acute catarrhal inflammation of the mucous membrane lining of the nose, extending at times to the adjacent sinuses, and manifested by sneezing, hyperemia, hypersecretion, and difficult respiration through the nose. This brief sketch will deal rather with the simple form of acute coryza than the specific forms which occur in the exanthemata or associated with special dyscrasia. Although it is apparently evanescent and self-limited, it is not well to pass it by too lightly, for while it often seems trivial to the physician it is not so to the patient, and it is really one of the most common excuses for recourse to the nostrum vender. Physicians too often consider a head cold unworthy of notice unless the accessory sinuses, the pharynx, or the middle ear have become involved.

Causes.—The chief underlying cause of this trouble is a depressed state of the nervous system, which results in a sluggishness of the heat-producing centers. Such a state may be brought about by excessive mental or physical fatigue, or by a lack of circulatory stimulus from inactivity of mind or body. In other words, the many exciting causes are not prone to bring about a cold unless there is also a relaxed condition of the heat centers. One is more apt to "catch cold" when in the depressed state brought about by a funeral or a dull lecture or meeting than when exhilarated as at a dance, or place of amusement, even though the exposure may be greater under the latter conditions. Sitting idly in a trolley car or train for some time makes one liable to cold. Improper clothing, sitting in a draught, changing from a warm to a cold room, or *vice versa*, are common exciting causes. So, too, the action of irritating matter, such as dust or certain chemical vapors, is a causative factor. Improperly protected feet and failure to promptly change wet stockings are very common causes. Those who are susceptible to colds from slight causes are usually sufferers from some nasal deformity—more commonly hypertrophic rhinitis. The excessive use of alcohol or tobacco is a predisposing cause. Acute colds are rare in old age.

In order that the nose may properly perform its function of heating and moistening the inspired air, the amount of the blood-supply and glandular secretion of its lining mucous membrane must be constantly varied to suit atmospheric conditions of temperature, dryness, or moistness, and in order that these changes may take place rapidly the mechanism governing these conditions must be delicately poised: thus the sphenopalatine ganglion and the fifth pair of cranial nerves must be in a healthy condition to regulate the blood and glandular supplies, and for them to be in good condition means that the general nervous system should be normal.

Pathology.—In the early stage the membrane lining the nose is turgescent, with a dry surface; this dry stage being shortly followed by a moist one in which there is an exudation of serous fluid, which is saline and irritant. The serous fluid later becoming charged with desquamating epithelial cells and leucocytes grows thick and cloudy, and still later yellowish. This latter hue is probably exaggerated by the staphylococcus aureus present. Various bacteria have been found in the secretion, but none have been positively identified as the cause.

Symptoms.—These are well known even to the layman if he resides in latitudes subject to marked temperature changes. At first there is often a sense of dryness and discomfort in the nostrils accompanied by sneezing. There may be fever, chilliness, or in severe cases a distinct rigor. Dull head pains,

especially after mental effort, and painful sensations in the muscles or joints, together with a feeling of lassitude, are often present. Following the dry stage by a few hours the secretion becomes excessive, the engorged blood-vessels exuding their liquor sanguinis, which mingles with the desquamated cells. The stuffiness or complete closure of the nares by the swollen erectile tissues adds materially to the discomfort, occasioning mouth-breathing and its concomitants, vocal impairment, sore throat, and cough. Should the frontal sinus become involved there is distressing supraorbital headache. This is often the case when congestion only is present in this region, without suppuration. If the antrum of Highmore becomes involved, neuralgic pains in the face and teeth will be experienced. There is often a sense of fulness in the ears, or even deafness, with or without ringing noises from closure of the Eustachian tube orifices. This closure is thought to be a provision of nature to prevent septic infection through the tubes, but if persisted in may lead to middle-ear inflammation. If the orifices of the tear duct under the inferior turbinate are encroached upon by the swollen mucous membrane, there will be an overflow of tears on to the cheek. The senses of smell and taste are often lost, and there is at times difficulty in concentrating the attention (aprosexia). The excoriation so often found at the edge of the nostrils is probably in part due to the irritating secretion, but chiefly to undue use of handkerchiefs.

Treatment.—This should be divided into prophylactic, abortive, and curative. Prophylaxis embraces rational clothing, the avoidance of draughts, care of the digestive functions, and maintaining the nervous tone. Too much clothing is more apt to be worn than too little. Those whose life-work is indoors should wear light underwear the year round, and put on heavy outer garments when going out in cold weather. The feet and legs should be especially well protected, and stockings should be changed at once upon becoming wet.

As a preventive measure a brisk dry massage of the body and limbs morning and evening is excellent. This may be reenforced by a laxative tablet of calomel and sodium bicarbonate, and a granule of strychnine sulphate $\frac{1}{30}$ to $\frac{1}{20}$ grain three times a day, or a hot drink at bedtime after a hot foot-bath; then covering up well in bed so as to cause general perspiration; dressing rapidly in the morning, and remaining in the house until the circulation is thoroughly established.

After an attack is fairly started the bowels should be regulated by a saline cathartic, and the nerve tone should be maintained by $\frac{1}{30}$ grain of strychnine thrice daily after meals, or if the discharge from the nose is free the following tablet may be used:

℞ Morph. sulph., gr. 1-32;
Strych. sulph., gr. 1-95;
Atropinæ sulph., gr. 1-150;
Acid. arsen., gr. 1-100;
Aconitine, gr. 1-1000.
M. Sig.: One to three daily according to symptoms.

The *local treatment* should be carried out with great gentleness; the patient should be cautioned not to blow or wipe the nose except when absolutely necessary, and then only gently, blowing one nostril at a time while it is entirely free from pressure.

As a preliminary measure the nares should be thoroughly though gently sprayed with an alkaline antiseptic solution, which should pass through the nasopharynx into the mouth. The chief remedial agent is a one-per-cent solution of cocaine, to which may be added two grains of boric acid to the fluidounce. When the secretion is excessive and the breathing space nearly closed, a small quantity of this solution should be sprayed into each nostril, barely sufficient to cover the membrane, but not enough to reach the nasopharynx or to run out in front. This should be allowed to rest undisturbed upon the membrane for about five minutes, when it may be followed by a spray of

℞ Antipyrin, gr. x;
Aquæ destillat., f ʒ j.
M.

This in turn should be allowed to soak for five minutes and then gently blown out, and a coat of the mild chloride of mercury insufflated over the turbinates so lightly that it barely turns the surface gray. This may be followed by an oily protective solution, *e.g.*:

℞ Menthol (crystals), gr. v;
Liq. petrolei, f ʒ j.

The above procedures should be carried out once daily by the physician.

This treatment, while seemingly elaborate, will shorten the attack and greatly alleviate the symptoms, and it is very simple if the remedies are at hand. Hemming or hawking should be restrained; the motion of swallowing will often relieve the desire to do these; if not, a lozenge of red gum or slippery elm may be allowed to slowly dissolve in the mouth to relieve the tickling sensation

in the throat. Pharyngitis or laryngitis if present will be relieved by a spray:

℞ Ol. eucalyptol, ♏ ij;
Zinc. sulph., gr. x;
Antipyrin, gr. xl;
Aquæ destillate, f ʒ ij.
M.

This should be sprayed into the pharynx and inhaled into the larynx every two or three hours. Frontal sinus pain is relieved by the above local treatment, to which may be added a hot-water bag across the eyes when the pain is severe. Suprarenal extract has been used to prolong the action of the cocaine solution, but as it aggravates the symptoms in a number of cases I no longer use it. The danger of giving the cocaine habit must be borne in mind, as it is easily done, in spite of authorities to the contrary. The patient therefore should not know what he is getting, and a prescription should never be given containing this remedy. In rare cases which are very aggravated I sometimes give the patient a half-drachm vial of cocaine solution, instructing him to add the contents to an atomizer half filled with an antiseptic solution, as follows:

℞ Sodii bicarb., gr. v;
Sodii borat., gr. x;
Listerine, f ʒ v;
Aquæ, f ʒ iv.

He may spray a small quantity of this into each nostril when the stuffiness is excessive; but under no circumstance should he be told what it is.

A capsule composed of the following may be given every two or three hours in place of the anticold tablet mentioned above:

℞ Pulv. opii, gr. ¼ to gr. ½;
Camphoræ, gr. j;
Ammon. carbonat., gr. j to iij.
M.

GONORRHEA AND ITS TREATMENT FROM THE PRESENT STANDPOINT.

By Henry J. Scherck, M.D.,
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There are few diseases for which there exists such a multiplicity of remedies as gonorrhea, yet it seems there is much to be desired in the way of treatment which will insure definite results in most cases. It therefore behooves all workers in the special field of genito-urinary diseases to keep careful notes of their cases, together with the treatment employed and the results obtained. In this way alone will definite conclusions be deduced as to the most efficient method of handling the disease—a disease of grave importance, the results of which often extend over years of suffering, the complications of which shorten life, and last but not least, the pathological conditions which it may induce in the innocent partner in life, as has been so clearly proven by the writings of Lawson Tait, Wertheim, and others.

True gonorrhea is primarily a local infection due to the deposit on a mucous membrane of the gonococci of Neisser. The primary object in the treatment is to destroy the activity of these germs as quickly as possible. The treatment of acute gonorrhea involving only the pendulous urethra is not a difficult task, but it is in the extension of the disease to the posterior urethra, seminal vesicles, the prostate gland, and even to the bladder, that we meet with most obstacles. A careful study, then, of the anatomy of the urethra and its contiguous structures is absolutely necessary to a proper and scientific understanding and treatment of this disease.

I will not burden the reader with an exhaustive description of the anatomy of the genital apparatus, but simply call attention to the more important points bearing directly on the treatment of this disease. We know that the urethra is lined with mucous membrane from the meatus to the bladder, and in the anterior urethra, which embraces the canal from the meatus to the triangular ligament, we have three kinds of glands, opening into the canal—Cowper's glands, the crypts of Morgagni, and the follicles of Littré. All these glands belong to the class known as the compound racemose variety. Littré's and Morgagni's glands resemble each other closely; Littré's, however, being much more numerous, are located mostly on the floor of the urethra. Cowper's glands are situated behind the anterior layer of the triangular ligament, their ducts opening into the bulbous urethra.

In the prostatic part of the urethra numerous glands exist. By careful examination the ducts are seen opening into the urethra from and around the region of the prostate. These openings are small tubes lined with epithelium, running into the substance of the prostate. The prostate gland itself contains a large quantity of unstriped muscular fibers running in various directions, and by means

of the contraction of these the prostatic fluid is thrown into the urethral canal. Attention is especially called to this fact for the reason that in cases of prostatic gonorrhea, where foci of infection remain embedded in the gland, the infected pus is by means of this contraction thrown into the urethral canal, thereby reinfecting it. On either side of the sinus pocularis are the ejaculatory ducts which convey the semen from the seminal vesicles. Beyond the verumontanum we have the prostatic tubules, already referred to; their number varies greatly in different individuals. Careful attention is called to these, as we often find them the seat of chronic inflammation, causing the adjacent structures to become hypertrophied, giving rise to what is sometimes called the third lobe of the prostate. In this region, also, we find the sphincter muscles dividing the anterior from the posterior urethra, the dividing line frequently between the infected and the non-infected portions of the urethra. I have called attention to these points of the anatomy as directly bearing on the scientific treatment of urethritis.

When the urethra has been infected with gonorrheal pus, infection beginning at the meatus travels toward the sphincter muscle, and in uncomplicated cases is usually limited by this obstruction. If at this time local antiseptic treatment is begun, with careful attention to the mode of life and diet, together with certain internal medication, cases usually respond to treatment and promptly get well. In these cases infection is not deep, nor is it in truth more than a surface inflammation.

The observations herein recorded are the result of the study of over seventy-five cases of urethritis. The statements consist of the general deductions drawn from the results of the treatment employed.

When a patient comes to me, I get from him as complete a history as possible, with special reference to the length of time since the attack began; secondly, I ascertain whether the posterior canal or other structures posterior to the cut-off muscle are involved or not; thirdly, whether it is the first attack or not. A microscopical examination is also made to discover the presence and conditions of the gonococci. From this history and examination I endeavor to establish whether it is an acute attack. As will be shown later, many patients come, thinking their cases are acute infections, but investigation shows them to be old infections made active by excessive sexual indulgence or the abuse of alcohol. In these cases we will find, upon examining closely, that at some point the infection has been lying dormant, either in some of the folds, crypts, or tubules of the urethral canal, and has been stimulated into fresh activity, thereby reinfecting the canal. It is from these patients that we often hear the remark, "I catch the gonorrhea every time that I have connection with a woman." These cases, I repeat, are simply uncured cases, which under certain conditions of congestion, irritation, and stimulation, become acute again and reinfect the healthy portion of the canal. If a patient presents himself with a history of recent exposure, free, purulent discharge, and red, angry mucous membrane near the meatus, the probability is that it is an acute attack. A microscopic examination is made and the quantity of gonococci in the discharge is noted. The general form of treatment in such acute cases consists of the following procedures: The urethra is first carefully washed with lukewarm water, after which one of the more modern of the various gonococcicides is used, such as mercurol, protargol, or Credé's silver solution. All of these drugs should be used in solutions of definite strength, and the solutions should be freshly prepared. Argonin is only dissolved by hot water; the others above mentioned may be dissolved in cold water. The following table shows the strengths in which the various agents are usually employed by me:

Mercurol	2-per-cent solution.
Protargol	5-per-cent solution.
Credé's silver	1-per-cent solution.

Argonin and protargol are salts of silver having strongly antiseptic and germicidal action, without so great an irritating effect as the nitrate, and mercurol is a salt of mercury, possessing also strongly germicidal properties. The action of mercurol is said to more deeply penetrate the tissues, as it does not coagulate the albumin.

Whichever solution is used should be introduced gently into the canal with a three-ounce hard-rubber blunt-pointed syringe until the anterior canal is distended. The solution is allowed to remain there for five minutes, the patient closing the meatus by pressure of the finger. Care should be taken not to force this solution beyond the cut-off muscle. After this solution has been retained for the proper length of time, it is allowed to escape, and a two-gallon irrigator, filled with

a 1:1000 solution of permanganate of potassium, at a temperature of 120° F., is irrigated into the canal. The irrigator is raised to a sufficient height to cause the pressure to easily distend the canal, yet not sufficient to overcome the sphincter muscle. As the canal is distended the permanganate solution is allowed to escape and refill until the entire quantity of solution has been used. The nozzle employed is blunt-pointed so as not to cause any injury to the delicate mucous membrane, and behind and around the tip there is a cup-shaped guard to prevent the operator being soiled by the return flow. From day to day the strength of the permanganate solution is increased gradually until about one in five hundred (1:500) is attained. Every second day a microscopic examination should be made of the discharge, and the decrease in the amount of the gonococci noted. In the series of cases of which I have kept notes, the average time required for complete destruction of the gonococci was six to ten days. After the discharge contains no more cocci the use of the silver or mercurol solution is discontinued and the permanganate solution used alone, increasing it in strength as indicated by the condition of the case. This combined treatment, in the beginning, is practiced twice a day, if possible (if not, once a day will answer), and continued until the disappearance of the germs as above explained. The average time required to cure these cases was fourteen days; some required three weeks.

With reference to internal medication, the prime object is to cause the urine to become non-irritating, which is accomplished by dilution and alkalization; secondly, to make it aseptic and germicidal. The first object is attained by the administration of alkaline salts and the free use of diluents, such as lithia waters, and the administration of diuretics, triticum repens, saw palmetto or santal oil, while the urine can be made both sterile and antiseptic by the use of cystogen (ammonio-formaldehyde), a very happy combination being the following:

℞ Cystogen, gr. v;
Ol. santal, ♏ x.

Ft. in capsul. mol. no. i. Disp. tales doses no. xxx. Sig.: One capsule every four hours.

My observation is that the administration of cystogen as above causes the exhibition in the slightly acid urine of sufficient formaldehyde to make that excretion both germicidal and uri-solvent. It also favors the solubility of phosphates and oxalates, the precipitates of which, like that of the urates, are frequently a source of irritation. It is my practice to maintain this internal medication throughout the treatment, as it serves to reduce the inflammation, limit the area of infection, and prevent reinfection.

When gonorrhea is neglected, when the inflammation is allowed to continue, when the posterior urethra becomes involved, either from extension of inflammation or from infection of that portion of the canal by the improper use of sounds, or by forcing the discharge back with injections, then the many small canals, glands, etc., become affected, the gonococci finding lodging places in the sulci and tubules. This, then, is posterior gonorrhea. This condition of acute post-urethritis is more difficult to handle. When the discharge reaches the prostatic portion, the pus and germs gradually work their way into the tubules, forming larger or smaller pockets of pus in the body of the gland. This fact can be easily proven by the following test:

Let the physician prepare three glass vessels; allow the patient to urinate a small quantity into the first vessel, and you will notice that floating around in the urine will be small strings of pus and mucus, known among German writers as "Tripper faden." This is simply the washing of the canal, and shows that chronic inflammation is still going on in the anterior canal. Let him now pass a little urine into the second glass; it will appear on examination to be quite clear, unless there should be an existing superficial posterior urethritis or cystitis. Now prepare the third glass, but before allowing him to urinate into this, cause him to lean over a chair or table, and introduce the index-finger into the rectum and gradually milk the gland. You will empty into the prostatic urethra the pus secreted in the gland itself. Then allow him to urinate into the third glass. The contents of the third glass will show the pus secretion and chronic gonorrheal process going on in the gland. Should the seminal vesicles be involved, we can empty them also, by massage through the rectum. Collecting this discharge by means of a centrifuge and examining it under a microscope, we find pus, spermatozoa, mucoid globules, and granular phosphates. Dr. Bryson called my attention to a very interesting point in the diagnosis of seminal vesiculitis, namely, that when pus cells were present in the seminal vesicles, the

spermatozoa would bury their heads within the pus cells, and that under the microscope they would appear in this position still, showing that the pus came from the vesicles.

Again, we have gonorrheal cystitis as the result of the extension of the disease, mainly from unscientific treatment, but we will not consider this subject in this paper.

Now it is evident that when the trouble is chronic, when not only are the gonococci found in the tubules and various glands but are also sometimes buried in the submucous tissue, we must first empty the glands and tubules of pus and germs, before solutions can reach them, and we must force our antiseptic medication directly into these various receptacles, in order to make them sterile of germs. In the pendulous urethra, the best means we have for emptying the glands is by dilatation before irrigation. In treating chronic anterior trouble we gradually dilate by pressure with a straight Oberlander dilator, which is covered with a thin aseptic rubber hood, avoiding vaselin as a lubricant, using in its stead carbolated glycerin. We increase the dilatation at each sitting until the limitation is reached. The antiseptic solution is then introduced in the same manner as directed for the acute condition, and held there for about the same length of time. Irrigation with permanganate of potash solution is then done in the manner directed for acute anterior trouble, remembering that the height of the irrigator regulates to a nicety the force of the stream.

Care should be taken, if the posterior canal is not already involved, not to force back the injected fluid beyond the limits of the anterior canal; still sufficient pressure must be used to dilate the anterior canal so as to allow the fluid to reach every corner and crevice. In cases where the prostatic portion of the canal is involved, together with the prostate gland, instead of a straight dilator of Oberlander, a curved one should be used, with its rubber protective. The rubber covers should be marked, so that they may be used, each for an individual case, and should be kept in a jar of antiseptic solution when not in use. Before treating prostatic gonorrhea, the gland must be thoroughly emptied of all pus by careful massage through the rectum. The patient is then allowed to urinate, so as to wash out all the discharge. The canal is gently cleansed and then irrigated, and finally a solution of one of the silver or mercury salts before mentioned is injected directly into the prostatic urethra, by means of a deep urethral syringe. In these cases the neck of the bladder is often involved and irrigation becomes necessary. The bladder can be distended by irrigation per meatus by increasing the pressure from the irrigator and instructing the patient to relax the sphincter muscle as in the act of voiding urine. This method is a great advance over other methods. With a little practice the patient soon learns how to relax the muscle. Should he have trouble, urge him to urinate, and he will unconsciously relax the muscle. I have not only found this method of irrigation excellent in any condition requiring washing of the bladder, but we thus avoid the introduction of instruments into the bladder, which so often causes trouble. The moment the patient complains of distention the pressure from the irrigator must be withdrawn and the bladder emptied. The bladder may in this manner be filled and emptied as often as may be deemed expedient, usually four or five times.

As can be readily seen, the treatment in chronic cases takes considerably more time and care than the handling of acute cases; still, when this local treatment has been carried out systematically and carefully, I have seen but few cases where good results did not follow. There are cases where slight variation in treatment seems to be required, but I have omitted the consideration of these in this paper, which is intended only to give the general routine treatment that I employ.

In chronic as in acute cases, I usually use alkaline mineral waters, diuretics, and the internal antiseptic cystogen. I find the internal medication just as serviceable in these as in acute cases.

Careful attention to the diet is necessary, with particular reference to the avoidance of such articles as would tend to either congest the genito-urinary tract or increase the acidity of the urine, or in any way cause that excretion to become more irritating to the mucous membranes. Carbonated waters are not to be recommended, as they tend to increase the acidity of the urine.

This account of the diagnosis and treatment of gonorrhea may contain some suggestions helpful to the general practitioner, and it is the author's earnest hope that it will serve to cause workers in this line to tabulate their cases so that they may be published, in order that definite conclusions may be reached with respect to the treatment of this disease.

A STUDY OF SOME HEART LESIONS AND OF SOME OF THE MEASURES FOR THEIR RELIEF.

By H. A. Hare, M.D.,
Professor of Therapeutics in the Jefferson Medical College; Physician to its Hospital.

(*Concluded from page 809, vol. xvi.*)

We now come to a discussion of the most important part of this article, namely, the treatment of some of the conditions described. As has already been emphasized, the important thing for a heart in a case of strain due to external or internal causes is rest, in order that the least possible exertion may be made until it accustoms itself to the demands made upon it.

This matter of rest has already been dwelt upon in previous pages, but it is so important that it should be emphasized again. There can be no doubt that a great mistake is made by those who in the presence of a failing heart give digitalis or other drug of the nature of a stimulant without at the same time insisting upon sufficient rest. Sufficient rest may mean in one instance the withdrawal of all active muscular exertion, and in another instance may mean absolute rest in bed for a considerable time. The necessity of this feature of the treatment is too evident to need emphasis, for as Da Costa was wont to say, we often meet with a "tired heart." In many instances the institution of rest results in very remarkable improvement, not only in the symptoms, but in the physical signs, the area of cardiac dulness is greatly decreased, and the whole circulatory condition is improved. As a rule it is best not to resort to cardiac tonics in such cases unless the condition is urgent, since relief may be obtained in many instances without the use of drugs. Again, if the use of rest is first resorted to and the areas of cardiac dulness carefully studied, and later on digitalis is given, a definite idea of the relative value of both methods of treatment can be reached.

A second factor very conducive to cure, or to speak more accurately, to relief, is the proper use of massage or Swedish movements during the period of rest. There can be no doubt that if the heart is rested by avoidance of exercise measures should be taken to increase the circulation of the lymph and blood by the gentler forms of massage and passive movements of the muscles, as in this manner the hands of the rubber act as additional hearts urging the fluids of the body onward. In some cases these rubbings or passive exercises have to be very gentle, as, if used actively at first, they may cause syncope or faintness. Such a plan of treatment also improves the nutrition of the tissues, maintains the tone of the muscles, prevents capillary stasis, and often relieves moderate dropsy. The so-called Schott method as practiced at Nauheim depends largely upon these influences, while the stimulation of the skin by the bubbles of carbonic acid gas in the water also acts as a vascular tonic. As the case improves mild shower-baths or douches will, by improving vascular tone, benefit the patient still further.

The influence of climate upon cases of cardiac disease is worthy of consideration. No climate can be found which will prove as beneficial to cases of heart disease as can be found for pulmonary cases, and it is to be recalled that three conditions are very unfavorable in cases of feeble heart, namely, extreme cold, high winds, and high altitude. Extreme cold demands an active circulation and active vitality, neither of which can be present in such cases. The presence of high winds which buffet the patient is also very dangerous to cardiac cases, probably because they occasion sudden muscular effort and are likely to produce vascular spasm, which increases the work of the heart; and high altitudes, which often cause cardiac difficulty in the well, are a serious influence in such cases, tending to produce sudden failure or dilatation, and absolutely contraindicating the visit of cardiac patients to such altitudes unless the compensation is most satisfactory. Even then the visit to a high altitude may cause rupture of compensation.

Last but not least in the line of remedial measures other than drugs we must not forget the diet. This will vary with the activity of the patient as to quantity, but as a rule in all cases of feeble heart, whether they be up or down, we should feed often and in small quantities. It is not only unwise but dangerous for patients with feeble hearts to take large quantities of food or drink at a time. Aside from overloading the digestion, which is feeble because of poor circulation, the distention of the stomach may by pressure on the right heart cause serious if not fatal cardiac embarrassment; and cases are not rare in which this result follows excessive eating or drinking on the part of patients suffering from cardiac disease.

Passing to a consideration of the drugs which may be employed in cases of car-

diac disease, there are several facts to be primarily stated. First, every patient who has a murmur in his heart is not in need of a drug. A drug is needed only if there be in association with the murmur signs of failure of the heart to do its work. And therefore, if in a given case no murmur can be heard because the heart is too feeble to drive the blood with sufficient force to produce a murmur, stimulant drugs may be needed far more than they are when a loud and angry murmur is present. The use of digitalis in cases where it is really not needed is actually baneful, not beneficial.

I shall not in this paper enter into a description of the manner in which cardiac medicaments do good where properly used in cases of heart disease. A description of these actions will be found in my book on Therapeutics. But it may not be out of place to consider the relative value of these drugs and the circumstances under which they will prove of most value, dealing in part with their action upon the state of the blood-vessels and the muscular fibers of the heart.

It seems hardly necessary to state that digitalis is the best of all drugs in the treatment of many cardiac disturbances, but on the other hand it is necessary to state that it is often used in cases in which it is not only useless but harmful, and that it is employed in many instances in such a manner as to indicate ignorance of its real value in medicine. In the first place, it is abused in that it is employed as if it were qualified to heal the lesion and close the leak, or in the case of degeneration produce a new muscular apparatus. The most that digitalis can do in any case is to increase the nutrition of the heart muscle and so to aid in the maintenance of its ability to work and in the development of the needful hypertrophy of the heart muscle. At best it is but a splint to help broken compensation.

The second mistake in its use is its administration in too large dose. Not uncommonly it is given in the dose of twenty minims of the tincture three or four times a day, which in itself is as a rule too large; but worse still, it is continued in this dose till its effect is cumulative, because being slow in its action and tenacious in its effects its early doses are still producing an effect when the following doses are given. There is nothing uncanny or odd in this so-called cumulative effect of digitalis, save that the results to the patient are sometimes disastrous. Any drug which is tenacious or prolonged in its influence will do the same thing. The bromides, for example, if given day after day, in full dose, not only cause the effect ordinarily produced by a single dose, but in addition produce a cumulative influence in that the effect of the last dose is added to the effects of its predecessors long before the effects of these have passed away. It is simply a question of pouring in more drug before that already present is passing away in its influence. Rarely it may be necessary in urgent cases to give a few large doses at the beginning of the treatment for the purpose of speedily obtaining the desired effect; but after this the dose should be cut down from one-half to one-quarter the original size and so maintained, or, as is so often done by skilled practitioners abroad, the drug is stopped for a period every eight days in order to enable the economy to get rid of what is already present. A far better method of giving digitalis is to use moderate doses till signs of its physiological influence are manifest, when it may be maintained or slightly cut down.

If the dose of digitalis is too large in the twenty-four hours it often happens that the patient passes through three stages of treatment. At first, when the effect of the drug is beginning to be felt, the patient improves, and then, after some days of comfort, begins to lose ground and even to have greater cardiac disorders than before, owing to incoordination of the ventricles and auricles and the imperfect or abortive systolic contractions. If the lesion be a valvular one, this disorder may actually increase instead of diminishing the leak, and greatly increase the patient's discomfort.

A third mistake in its use is its too frequent administration, in that it may be ordered every three hours when every eight hours would be better. Unless the individual dose is very small, it is better to give the drug three times in the twenty-four hours instead of oftener.

A fourth mistake is to give this drug in cases of high arterial tension without first or simultaneously reducing this tension to an approximately normal degree. In many cases of failing heart the difficulty is not that the heart muscle cannot stand the strain of normal exertion, but is continually called upon to stand a strain far in excess of the normal. While stimulating and strengthening the heart muscle may be advantageous, it is manifest that the best thing to do is to

reduce its work. Our object should be to reduce the resistance, and then, if it be needed, to use cardiac medicaments. It is not necessary to add that for this purpose the nitrites are the remedies of choice. There can be no doubt that this is one of the cardinal facts in cardiac therapy, not only in regard to the use of cardiac stimulants as a class, but in relation to the use of digitalis in particular, since it, of all the cardiac stimulants, powerfully contracts the vessels and tends to raise tension at a time when this portion of its physiological action is most undesirable. But the mistake of giving digitalis in full doses in cases of high tension does not end here, for if there be atheroma present, the increase in arterial tension may cause an apoplexy or hemorrhage elsewhere.

Still a fifth mistake in regard to the use of digitalis is its employment in cases of advanced fatty degeneration. In such cases the absence of normal muscle fiber upon which the drug can produce an effect, the almost unavoidable rise of arterial tension, and the consequent strain upon the feeble heart, make it unwise to use it except under exceptional circumstances.

There is one condition of valvular disease in which it has been taught by some authorities that digitalis is contraindicated, namely, in aortic regurgitation, on the ground that the drug by prolonging diastole increases the period during which regurgitation can take place. This has been strenuously contradicted by equally good observers, and the whole matter threshed over *pro* and *con* by able disputauts. The truth of the matter is that it is generally contraindicated, but may be indicated, and that we cannot make a hard and fast rule entirely forbidding it. Given a case of great dilatation, with muscular feebleness, it may do good particularly if the vascular effect is put aside by the use of the nitrites. In other instances it must be tried experimentally to see how it will suit the individual case, and when this experiment is made, the patient should be put to bed, thereby decreasing the danger of sudden death, which is a constant danger in aortic regurgitation of a marked type, and is distinctly increased by digitalis if it happens to greatly increase the reflux into the ventricle.

There is still another valvular condition in which digitalis sometimes fails to agree, namely, in certain cases of mitral regurgitation in which for some unexplained reason the use of the drug seems to increase the reflux into the auricle instead of aiding in increasing the output into the aorta. In these cases the signs of pulmonary engorgement and congestion of the right side of the heart are the signs which tell us to withdraw the drug.

Finally, it is not to be forgotten that digitalis is often contraindicated by the presence of marked gastric disturbance, but it is a noteworthy fact that it produces vomiting as a sign of its overaction, and therefore commonly after it has been given too freely. This influence probably depends upon an irritant effect of the drug on the stomach, and an influence exerted on the vomiting center in the medulla.

There is another point in connection with the use of digitalis which practitioners on this side of the Atlantic often overlook, namely, the simultaneous employment of blue mass in repeated and full doses. The manner in which this valuable drug acts under these conditions is not always clear. When the liver is inactive because of imperfect circulation of blood, and is swollen and engorged, a full purgative dose of blue mass naturally relieves this congestion and promotes hepatic functional activity. But other drugs which purge the patient rarely produce equally good effects, and it would seem probable that the relief of liver engorgement is accompanied by an increase in its ability to destroy toxic materials in the blood or to aid in their elimination through the bile. Probably the increased urinary flow under this treatment not only eliminates fluid but toxic material as well by way of the kidneys. In cases in which the liver is enlarged and swollen, the portal circulation impaired, and the digestion poor, blue mass is not only a hepatic but a true cardiac remedy, particularly if the right side of the heart is in trouble and cardiac dropsy is manifest. In some patients the administration of digitalis fails to do any material good till blue mass is freely given.

Passing from digitalis to the next member of this group of heart remedies, we come to strophanthus. There are three facts which seem worthy of special note concerning the use of this drug. It is not by any means as useful as digitalis, yet will sometimes act very well when digitalis has failed. It is always to be preferred to digitalis when a state of high vascular tension is present, because it does not contract the vessels as does digitalis. Again, unlike digitalis, in many cases it is given in too small doses rather

than too large ones, and unfortunately, when given in large enough doses to be effective, not only produces irritation of the bowels but an annoying diarrhea. Finally, it nearly always, in my experience, acts better in children than does digitalis.

A REPORT OF A CASE OF RESECTION OF A LARGE PORTION OF THE ILIUM FOR CHONDROSARCOMA.

By W. Joseph Hearn, M.D.,
Clinical Professor of Surgery in the Jefferson Medical College of Philadelphia.

The case I report is that of a patient who was admitted to the wards of the Jefferson College Hospital on the 27th of October, 1900. His age was forty years, white, married, and weaver by occupation; birthplace Germany. Both mother and father living and well; one sister died with pulmonary tuberculosis, age unknown.

His personal history: Had enteric fever at the age of ten; no specific history.

His present trouble began in the early part of 1896, when he noticed a small painless mass about the size of an egg in the left external iliac region just above the great trochanter. The tumor gradually increased in size. He was advised by his physician, as it was painless, to leave it alone, and not seek surgical aid unless it grew very large or became painful. It increased steadily in size until the beginning of 1900, when it began to grow very rapidly. It had never been painful. The tumor was somewhat spherical, and about fifteen centimeters in its longest diameter by thirteen in the shortest. Near the apex of the mass there was a sense of fluctuation; the rest of the tumor was of bony hardness. The diagnosis lay between echinococcus of the pelvic bone, similar to one reported by Viertel in a peasant woman twenty-five years of age, and a cystic sarcoma. We decided, however, that it was a cystic sarcoma. The tumor was immovable, and seemed to spring from the medullary portion rather than from the periosteum. There could be felt on portions of the tumor hard plaques, apparently bone.

We determined to remove the tumor even if a portion of the ilium had to be removed with it, but to desist should we find the pelvis too much invaded. The sacroiliac joint was not invaded by the growth, but it extended to the level of the brim of the pelvis. The patient was apparently in good condition to stand an operation, and bore the anesthetic well. At the suggestion of Professor Keen, who saw the patient with me, and who kindly assisted at the operation, a T-shaped incision was made, the upper incision along the crest of the ilium. This enabled us, by pushing off the peritoneum, to explore the inner margin of the pelvis and determine upon its invasion; not being invaded, another incision over the center of the tumor, perpendicular to the horizontal one, was made down to the tumor, which was covered by the gluteal muscles; another horizontal incision was made at the lower border of the tumor. We were thus enabled to turn back the flaps and expose the entire mass. We found it somewhat pedunculated. The attachment to the bone was in the iliac fossæ. After separating the tumor as much as possible from the pedicle, a chisel and gouge were used to cut through the bone, and thus remove the tumor with its bony attachment. This was done readily where the bone was thin in the iliac fossa, but with much more difficulty through the thick edge of ileopubic ridge. There was little loss of blood, as the gluteal vessels were pushed aside and not divided. The patient left the table apparently in good condition, but died early next morning from shock, notwithstanding everything known was done to relieve him.

The tumor was apparently a chondrosarcoma. The apparent cyst was due to a softening and mucoid change in the tumor. In its early stage it was no doubt an enchondroma, but later took on the sarcomatous change, as other non-malignant tumors often do. I can find so little literature on chondrosarcoma in this region that I can do but little more than report this case.

CURE OF VICIOUS CICATRIX IN THE CHEEK, BY FREEING IT AND INSERTING A GRAFT OF ADIPOSE TISSUE.

A young girl, aged twelve years, was shown to the Société de Chirurgie de Lyon by Nové-Josserand (*Revue de Chirurgie*, 1900) in May, 1900. He had treated a cicatrix adherent over the malar bone by the following operation: Dissection of the cicatricial tissue and transplantation into the wound of a piece of fat taken from the thigh of the patient. Wire sutures were used, and the result of the operation was very satisfactory.

The Therapeutic Gazette

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Leading Articles.

THE IMPORTANCE OF URIC ACID AND OTHER PRODUCTS OF METABOLISM IN CONNECTION WITH TREATMENT.

There is no subject which needs careful investigation more than metabolism in the human body. For years skilful chemists and physiologists have studied the educts which are prepared by the human economy from foodstuffs and the wasting of its own tissues. For years they have elaborated interesting hypothetical conclusions, based in part upon their investigations, and often proving erroneous not only so far as the hypothesis is concerned, but also in relation to the research itself, because improved methods of investigation have shown that the processes employed in the original researches were faulty in the extreme. Some years ago, as our readers are aware from our columns of book reviews, there appeared a most interesting article by Dr. Haig upon "Uric Acid as a Factor in Disease." Partly because of our ignorance concerning the influence of uric acid in the economy, and partly because of the interesting manner in which Dr. Haig compiled his information, this book had a great vogue, and has undoubtedly been of value in that it called the attention of the profession to a study of renal activity in serious conditions of disease which were obscure in origin.

Careful reading of Dr. Haig's contributions has, however, revealed in a number of instances that his hypotheses and opinions were based upon investigations which in detail or in completeness had certain elements of uncertainty about them, and many practitioners of eminence have refused to entertain his views that uric acid was capable of producing all of the evils which he put to its credit. It has always seemed to the writer that while uric acid may be responsible for some of the symptoms presented by certain patients, as a matter of fact many other symptoms probably arose from other substances manufactured by the human economy—substances which had not progressed to a chemical condition which represented uric acid, or which possessed any relation to it whatever.

It has seemed incredible that uric acid could be responsible for the very marked and varied phenomena with which it has been credited, and we therefore have read with much interest a paper recently contributed to the *New York Medical Journal* by Dr. Croftan, of Pasadena, Cal., in which he gives certain results which he has obtained by chemical investigation and animal experimentation. Not only has he published the particular paper which we have reference to, but also others which have a collateral bearing upon the facts which we are now discussing. One of the most important of his assertions is that uric acid is not the *materies morbi* in uric acid lesions; that it acts pathologically only from its tendency to form concretions; that its formation, far from being a process of self-intoxication, is a process of disintoxication; that the decrease of uric acid observed at times is not due to retention, but to non-formation; finally, and most important, that the active agents in producing evil in uric acid lesions are the alloxuric bases.

While some of the experiments which Dr. Croftan has made upon animals do not seem to us to be presented with sufficient detail from the standpoint of scientific thoroughness, the views which he advocates are certainly worth much careful consideration. He points out that there are a group of substances called alloxuric bases that are chemically closely related to uric acid, and that they are basic substances readily soluble in

the juices of the body. Further than this, in contradistinction to uric acid they possess highly toxic properties, while uric acid has been proved by physiological experiment to be almost devoid of toxicity. Again, it has been proved, at least in part, that whereas the injection of uric acid into a normal animal fails to produce physiological changes, the injection of these alloxuric bases very readily produces alterations in the cells of the kidneys and other portions of the body which are closely allied to those which we are usually wont to ascribe to uric acid itself. It is well known to physiological chemists that these alloxuric bases are derivatives of cellular nuclein, and it is also known that cell nuclein on being subjected to moist heat in the presence of oxygen gives uric acid; whereas, if oxygen is withheld, alloxuric bases are formed in its stead. While, therefore, it is possible to have these bases formed from nuclein, or to have uric acid formed from nuclein, it is not possible to have alloxuric bases converted into uric acid by oxidation.

As the leucocytes or white blood cells in the blood furnish the bulk of nuclein, it is interesting to note that there is an increase in the excretion of alloxuric bases and a diminution in the excretion of uric acid whenever nuclein catabolism is excessive and oxidation is reduced. In a condition of perfect health normal processes are capable of converting almost all of the nuclein into uric acid, which is duly eliminated by the kidneys; but if this perfect health is disturbed in any way greater quantities of poisonous alloxuric bases are formed, which enter the circulation and exert their evil influences upon the various organs of the body. When oxidation is decidedly interfered with and the functions of the body are still further perverted, the large increase in these poisonous substances over and above the amount which is eliminated does much toward producing the grave symptoms which are frequently met with in patients suffering from deficient elimination.

As Croftan well points out, there are certain therapeutic resources which should be employed in cases in which these conditions exist. In the first place, we should endeavor by every means in our power to increase the elimination of toxins as formed. We should endeavor to produce a reduction in the breaking-down of the nuclein, and we should, if possible, increase the processes of oxidation, so that these compounds will not be formed in excess. It goes without saying that the elimination and the manufacture of these substances can be greatly influenced by a large amount of fresh air and exercise, and they can also be benefited by the employment of mild alkalies, which probably do not benefit the patient by uniting with uric acid, so causing its elimination, but which exert a solvent action on the alloxuric bases, and so aid in the elimination of these toxic materials. It would also seem possible that by increasing the alkalinity of the blood, which has been increased by excessive catabolism, they may act beneficially.

We are glad to note that Dr. Croftan is not one of those extremists who insist that the diet should be cut down very vigorously in patients suffering from the conditions we have described. He believes that those articles of food which contain nuclein and large quantities of nitrogenous extractives are harmful, but that all other foods shall be permitted save those which are known to produce dyspepsia and gastrointestinal irritation. Albuminous foods, which naturally tend to increase digestive leucocytosis, had better be excluded, if used in large amount, on the theoretical ground that nuclein comes from the leucocytes, which therefore had better not be increased, if it can be avoided. So, too, those organs which are sometimes used as articles of food, namely, the liver, spleen, thyroid gland, and kidneys, which are rich in nucleins, are certainly to be avoided, for several chemists have noticed an increased elimination of alloxuric bodies after digestion of these substances. Meat extractives, such as soups, are also unsuitable for this reason, but carbohydrate foods, unless they are taken in excess so as to develop dyspeptic symptoms and lactic acid, are entirely permissible and indeed advisable. Alcohol is, of course, to be carefully avoided. For the purpose of increasing oxidation processes in the body, iron should be given if there is any tendency to anemia, and arsenic may also be used for the same purpose. For these reasons, hydrotherapy, massage, and electricity are also advisable for the purpose of increasing the activity of the vital processes. And again, Croftan believes that the inhalation of oxygen by the patient, holding the gas in his lungs during a full inspiration for as long a time as possible, is of value. He states that clinical experience fortifies his theoretical conclusions in regard to this important matter, and that he is able to produce marked improvement in health when

the measures mentioned have been instituted.

It seems to us highly probable that many conditions of headache, and nervous pain in other portions of the body, with mental torpor and general ill-health, may to a large extent be benefited by carrying out a line of treatment which is based upon these somewhat theoretical but still practical lines of information.

ADVANCES IN OUR KNOWLEDGE CONCERNING ANTITOXIN.

There can be little doubt in the minds of those who carefully study the subject of antitoxin that in the future a more ready way of administering the prophylactic and curative powers of blood-serum will be obtained. At the present time no one can deny that the injection of horse serum, properly prepared, is the best and most efficacious manner of obtaining a cure or preventing an attack of diphtheria in a patient who is suffering from or who has been exposed to this particular infection; nevertheless, we must welcome any methods which are made to isolate those substances which are responsible for its therapeutic activity, and it is to be hoped that at no distant day scientific investigation will in turn enable us to obtain first-rate results in the treatment of diphtheria without having to resort to the injections that are at present required. Our attention has once more been called to this important subject by two very interesting papers which appeared in the October issue of the *Journal of Experimental Medicine*, in both of which careful studies have been made concerning the question at issue. In the first of these, by Dr. Hiss and Dr. Atkinson, a comparative study of the amount of globulin in normal and antitoxic sera was made, and the relation of the globulins to the antitoxic bodies was also taken into consideration.

The authors have been peculiarly fortunate in that they have carried out their researches under circumstances which have given them exceptional opportunities for making investigations, and they conclude their paper by a statement of several interesting facts which may be summarized as follows:

"The amount of antitoxic substance obtained by precipitation with magnesium sulphate from the blood-serum of the horse corresponds in full, as nearly as can be determined by the use of test guinea-pigs, to the protective power of the serum from which it is obtained—*i.e.*, the precipitate from one cubic centimeter of serum will protect against the same amount of toxin as one cubic centimeter of the serum itself.

"Equal amounts of precipitates by magnesium sulphate from immunized and non-immunized horses act differently toward toxin—*i.e.*, the proportion of protective substance to the precipitate from non-immunized serum is exceedingly small as compared with the proportion of antitoxin to the precipitate from sera of immunized horses.

"The average precipitate from the sera of immunized horses, as obtained by magnesium sulphate, is more abundant than the average precipitate from sera of non-immunized horses.

"In the case of the same animal before and after immunization, the serum before immunization gives a less abundant precipitate with magnesium sulphate than the serum tested after immunization.

"The proportion of increase per unit of antitoxic strength for the same or different horses is not constant. This may be due to an increase of inactive substances (in their relation to diphtheria toxin), or to imperfect methods of determination.

"The precipitates obtained by magnesium sulphate give all the reactions recognized as characteristic of globulins, and as distinguishing them from other albuminous bodies. We are not warranted, then, in the present state of our knowledge, in considering any part of these precipitates as other than globulin. But it does seem warrantable to conclude, from the fact that the globulins of normal serum do not protect, or only in comparatively large amounts, against diphtheritic toxin, that new globulins are formed, or rather greatly increased, in the serum of immunized horses, and that these globulins protect against the toxin. These increased globulins and the inert globulins (which from obvious causes are a very variable factor) are both precipitated by magnesium sulphate."

The second paper that we have referred to is also by Dr. Atkinson, and deals with the fractional precipitation of the globulin and albumin of normal horse's serum and diphtheria antitoxic serum, and the antitoxic strength of the precipitates. His researches are naturally largely along the same lines as those quoted in the first paper, except that they have been carried a little further. The

results obtained have also been summarized in the following words:

"1. The globulins of both normal and diphtheria antitoxic serum exhibit chemically toward reagents the same reactions, being precipitated by magnesium sulphate and split up into fractions in precisely the same way.

"2. All of the diphtheritic antitoxic power of both normal and immunized serum is always carried by the globulin and its fractional precipitates.

"3. During the fractional precipitation of the serum globulin of horses immunized from diphtheria toxin and horses not immunized from diphtheria toxin, some of the globulin is lost; likewise at the same time some of the antitoxic power of the globulin of the immunized serum is lost.

"4. These reactions, considered in connection with the fact that different observers as well as we ourselves have found diphtheritic antitoxic power in normal horse's serum, and that this antitoxin separates with the globulin, strongly incline us to consider 'diphtheria antitoxin' a form of globulin.

"5. The reactions of globulins, previously separated from the serum by magnesium sulphate, with sodium chloride lead one to think that there is a formation of globulin salts."

APOMORPHINE AS A NERVOUS SEDATIVE.

It is a well known fact that in full medicinal doses apomorphine produces vomiting by its influence on the vomiting center of the medulla oblongata, and it is also known that one of the reasons why morphine is apt to produce nausea in susceptible individuals is that it is oxidized in the body, thereby forming a substance allied to apomorphine known as "oxydimorphine," which, being eliminated into the stomach and reabsorbed into the system, causes the symptom which we have mentioned. The medical profession has also known that in much smaller doses than those used for the production of vomiting apomorphine may be employed as a sedative in bronchitis for the purpose of checking cough and allaying irritation in the bronchial tubes, but it is only recently that a number of clinicians have begun to employ it as a nervous sedative in cases in which morphine, for various reasons, seems contraindicated.

Lewis, writing in the early part of 1900, reported that after using apomorphine in emetic doses in cases of alcoholism he was surprised to find that it quieted nervous excitation aside from any vomiting which it might produce; and Douglass, writing earlier than Lewis, also stated that he believed it to be a useful hypnotic in many cases of insomnia. The dose commonly employed for this purpose is given hypodermically, and is $\frac{1}{10}$ of a grain. But even this small amount may, in susceptible persons, produce vomiting, or at least nausea, unless the patient remains prone; and therefore, if the drug is to be given to produce sleep, it should be employed after the patient has gone to bed. This dose by the stomach seems to be too slowly absorbed to produce any hypnotic influence. In some susceptible persons even a smaller dose is necessary than that already named.

It would seem that apomorphine possesses certain advantages over other hypnotics by reason of the fact that the patient will be subjected to nausea and vomiting if he at any time attempts to take an excessive dose or continues it for too long a period in full quantity.

THE EMPLOYMENT OF CARBOLIC ACID INJECTIONS IN THE TREATMENT OF TETANUS.

The medical profession have for many years recognized the fatality of infection by the tetanus bacillus, and they have also known that such cases may be divided into two classes: those which rapidly pass to a natural issue within the first week or ten days, or even less, and those which last over several weeks, and which recover in a large proportion of cases. As we have pointed out in previous issues of the THERAPEUTIC GAZETTE, this class of subacute or chronic cases has served to distort the conclusions naturally drawn from developed statistics. Careful examination of statistics shows that, in the acute cases of tetanus, neither tetanus antitoxin nor any other therapeutic measure has as yet proved very useful, chiefly because it is by force of circumstances administered too late to exercise its protective influence, and in those cases which are more subacute there is always a doubt as to whether the patient would not have recovered, even if the remedy had not been employed.

We make these preliminary remarks before calling attention briefly to a method of treating tetanus which during the last few months has been considerably heralded by variou-

writers, namely, the hypodermic injection of large doses of carbolic acid for the relief of this disease. Quite a number of instances have been reported in which the patient has recovered after this treatment, but we cannot help feeling that in some instances the recovery has been a coincidence, and the physician has been guilty of the *post hoc propter hoc* argument, which, while it is useful in some cases, fails notably in others.

In the first place, when carbolic acid is injected subcutaneously, it at once coagulates the albumen of the part with which it comes in contact, and produces very considerable irritation. For this reason it is apt to be slowly absorbed. But if it is not slowly absorbed it is a substance which is very rapidly destroyed or eliminated from the body; and so far as we know there are no competent experiments to show that in the diluted form in which it circulates in the blood it exercises any influence upon the specific bacillus of which we are speaking. Further than this, its employment with the idea that it exercises a definite sedative influence upon reflex activity in the central nervous system does not seem to us to be justified, since there are other drugs which exercise a more definite and positive influence upon these portions of the body, and which are infinitely safer and more easily controlled in their action.

The quantities of carbolic acid which have been administered subcutaneously in many cases are quite large, sometimes as much as six to twelve minims being given under the skin each day; in other cases, even larger doses.

THE USE OF SILVER WIRE AS A MEANS OF REMEDYING BONY DEFECTS IN CONTINUITY.

Hofmann, having his attention called to the innocuousness of silver wire netting embedded in the tissues by the success attained by Witzel, who employs this method for the closure of hernial orifices, determined to use silver wire as a means of preventing the deformity and disability incident to an operation performed upon the lower jaw, for the removal of a necrosed area involving the greater portion of the ramus. The stumps of the articular process and of the body of the jaw were drilled, and the two ends of a stout silver wire were passed through these drills, the middle portion of the wire being bent to correspond with the missing angle of the jaw. This silver wire became entirely covered with granulations and the wound healed, showing no external deformity and giving the patient a useful jaw.

In the second case the entire diaphysis of the tibia was removed from a boy. This portion of the bone was replaced by a strand made up of twisted silver wire and secured by means of drilled holes to the two epiphyses. The wound healed and the form of the leg was preserved, though the wire was not sufficiently rigid to completely restore function.

In another case there was a tibial defect of 2½ inches. This was replaced by silver wire much more rigid than that used in the former case, and twisted into a thick strand. Both the prosthetic and functional results were entirely satisfactory.

It is interesting to note that Witzel has somewhat modified his original method of closing hernial orifices by the weaving of a silver netting over them. He now closes the opening by deep sutures, taking in a considerable amount of tissue. These sutures cross each other and are of medium size. With a very thin silver wire he then proceeds to practically darn the opening by a multitude of short stitches taken in various directions.

THE RESULTS OF THE BOTTINI OPERATION IN HYPERTROPHY OF THE PROSTATE.

Freudenberg, who has been mainly responsible for the popularity of the revised Bottini operation since he devised instruments for its safe performance, and demonstrated by a large number of cases its efficiency, has published a paper in the *Wiener Klinische Rundschau*, No. 46, 1900, embodying the results of a statistical study. In all he has collected 753 cases of the operation, with forty-four deaths—a mortality of a little under six per cent. Of these forty-four deaths there were but twelve which reasonably could be attributed to the operation, leaving a mortality of 4.25 per cent.

Of 718 cases in which the results as to cure were stated, 622 were either improved or cured—that is, 86.63 per cent; of this proportion 61.3 per cent were cured and 38 7 per cent were improved. There were fifty-five failures—7.66 per cent.

Freudenberg himself has now performed the operation eighty-six times on sixty-nine patients; seventy-eight times with the incisor and eight times with the cauterizer. There were four deaths shortly following opera-

tion, two incident to imperfect technique. Two other patients died within two months of the operation in consequence of a long-standing pyonephritis. There were no cases of death in patients with intact kidneys.

Freudenberg's operative mortality is 5.8 per cent, a little higher than that from his collected statistics; but this is to be explained on the ground that as a rule only favorable cases are reported. Eight of his patients were operated upon because of chronic prostatitis and sexual neurasthenia rather than because of prostatic hypertrophy.

As to the ultimate results in the sixty-one patients upon whom the operation was performed because of obstruction due to enlarged prostate, thirty-one—that is, 50.82 per cent—were cured, and sixteen, or 26.23 per cent, very greatly improved. He characterizes as cured only such patients as are able entirely to discard the catheter and are not troubled by undue frequency in micturition or difficulty in the act, and with a residuum not greater than six to eight drachms. As improved, he characterizes only such patients as exhibit a marked betterment of health and increase in body weight, with a lessened residuum and only partial dependence upon the catheter. Eight patients showed no improvement—13.1 per cent. Three of these patients were treated twice; four promise improvement upon a second incision.

As to the permanent results, Freudenberg has seen in four years but a single true recurrence. The tendency toward this seems to be slight, and is probably inversely proportionate to the thoroughness of the cure. He has followed many of his cases from year to year, testing occasionally for the quantity of residual urine. He has failed to find any alteration for the worse. He mentions two cases operated two and three-quarter and three and one-quarter years ago, which had long been suffering from complete retention, and had been castrated without experiencing any benefit from this operation. Both were completely cured by the Bottini operation and have never since had recurrence to the catheter, show no signs of cystitis, and give a residuum of but a few drachms.

Freudenberg calls attention to the fact that although the operation is a simple one good results from it can be expected only by careful attention to a number of important details. The most important of these is the selection of a proper instrument. The one he uses at present is capable of making a cut 6.6 centimeters long. The knife should be white hot. It should be carried in the right direction, and this is best indicated by cystoscopic examination. The length of the incision is determined by passing the instrument into the bladder, hooking it over the base of the prostate, feeling for the point of it in the rectum with the tip of the finger, and measuring the length of the prostate from the tip of the instrument to the apex of the gland. The cut is made four-fifths of this length. Lateral cuts are made from one-half to one centimeter shorter. That this cut should be of adequate length is a matter of extreme importance, since the obstruction is due not only to projection into the bladder, but to encroachment upon the prostatic urethra. Under the latter circumstances the cut must be carried close to the membranous urethra, but not into it. In the great majority of cases cuts two and a half to three and a half centimeters long are adequate. Exceptionally, the five-centimeter cut will be required, and very exceptionally one even longer. Freudenberg has devised a cystoscopic incisor by means of which the beginning of the cut may be made under the guidance of the eye. He himself states, however, that this instrument is not likely to be required often.

Although these figures apparently prove the operation to be a safe and efficient one, they are not in accord with the experience of many who have given the operation a limited trial. Practiced carefully with an efficient instrument and preceded and followed by careful urinary antisepsis, the operation should involve little risk. But, unfortunately, the operation often fails, is frequently followed by intense and agonizing tenesmus, and seems to be losing rather than gaining ground.

THE BACTERICIDAL POWER OF THE X-RAY.

So many vague claims have been made as to the bactericidal power of the *x*-ray, particularly on the part of individuals and institutions conducting the practice of medicine upon a purely commercial basis, that a careful study of this question is most timely.

It will be remembered that both medical and lay journals have contained announcements of the cure of tuberculosis by means of the cathode ray, and it cannot be doubted that many cases of lupus have been greatly benefited by this agent.

Wolfenden and Forbes-Ross, in the *Archives of the Roentgen Ray*, state that the *x*-ray tube,

far from inhibiting bacterial growth, distinctly and strongly stimulates it. Their experiments with the tubercle bacilli tended to show that the *x*-ray produced no bactericidal action; indeed, the bacilli grew three or four times larger than normal. They conclude, as a result of a two years' study of the subject, that it is impossible by any ordinary exposures to kill growths of bacilli or cocci by the *x*-ray, and that an apparent death in cultures is due only to exhaustion of vitality from excessive proliferation, since after rest the organisms take on active growth. Hence, the use of the *x* ray in the treatment of tuberculosis would seem to be distinctly contra-indicated. Its action in lupus is probably quite independent of any bactericidal effect, the extremely irritant effect of the *x*-ray producing an active congestion, much as would any other irritant.

LYMPHATIC AND PORTAL INFECTIONS FOLLOWING APPENDICITIS.

In this issue of the GAZETTE is published a paper by Munro upon the lymphatic and portal infections following appendicitis. He points out that retroperitoneal infection may be caused not only by an abscess which has perforated the posterior peritoneum or an infection which has traveled by continuity in the tissues of the mesoappendix, but may be due to lymphatic transmission, pure and simple, following an intra-abdominal abscess. He believes that such infection is much more frequent than is commonly recognized, and that in practically all cases of appendicitis the postperitoneal glands are more or less involved. He states that he is inclined to believe that patients with appendicitis who, both before operation and after thorough drainage, exhibit either marked hyperpyrexia or persistent elevation of temperature, have more or less extensive lymphatic infection, either from an appendix retroperitoneal in position or from direct or indirect septic invasion from an intraperitoneal inflamed appendix. The ordinary acute case of appendicitis does not have a persistent high temperature after adequate drainage, and in many of these cases a careful examination will show fulness, tenderness, and spasm in the right loin. He demonstrates moreover by reported cases that this postperitoneal lymphatic infection may follow slight attacks of appendicitis and may develop long after the appendicitis has subsided or has been cured by surgical means. He accounts in this way for at least some of the perinephric lumbar and pelvic abscesses which apparently rise without cause.

The possibility of retroperitoneal infection as a complication or sequel of acute appendicitis is well worthy of careful consideration. This complication must be rare; but that the surgeon often fails to recognize its existence is apparently shown by the comparatively large number of cases Munro found after he was thoroughly alert as to the possibility of the development of this condition. Lumbar tenderness and temperature over 101° following operation and drainage for acute appendicitis would by the majority of surgeons be considered as indicative of the presence of an intraperitoneal, undrained, purulent focus, and if these symptoms continued and increased in severity, they would be considered as indicating the propriety of opening the wound and making further exploration; and in probably the majority of instances such a pocket of pus would be found. Exceptionally the infection is postperitoneal, and an intra-abdominal exploration would expose the patient to an added and absolutely useless risk. Therefore, it is well for the surgeon to have prominently before his mind the possibility of peritoneal infection, and to remember that fulness, tenderness, and spasm in the right loin are the signs indicating the existence of this condition.

The portal infections, though rare, are much more frequently encountered than are the postperitoneal infections. This complication is noted by chills and hepatic tenderness, associated at times with jaundice. Munro advises prompt and thorough drainage of the liver, together with the removal of the inflamed appendix. The aspiration of the liver he regards as imperfect, unsatisfactory, and unsurgical. He advises abdominal section, the definite free exploration of the liver, and free opening of the abscesses within reach, as far more satisfactory, not difficult, and less dangerous than aspiration.

These secondary hepatic infections are usually regarded as necessarily fatal, and hence surgeons are not prone to operate upon them, believing that since the abscesses are multiple, the drainage of the few that can be reached will have little result upon the ultimate determination of the case. Munro holds that the chances of recovery without operation are practically *nil;* that operation does not increase the mortality, but may, in exceptional cases, give a definite chance of permanent recovery.

Reports on Therapeutic Progress

THE TEACHING OF PHARMACOLOGY.

In an address on this subject printed by the *Philadelphia Medical Journal* of August 18, 1900, W. G. SMITH states that there are three lines of inquiry which have been followed in the past and must be pursued in the future, namely: (1) Experiments on lower animals; (2) statistical observations of the results of treatment; and (3) individual observations at the bedside.

The rise and growth of the science of pharmacology which was founded by Bichat and Magendie early in the century has made it plain that all correct appreciation of the mode of action of drugs must be based upon physiology and pathology. The new departure has gradually leavened our conceptions of therapeutics, and renders the teaching of this branch alike more intelligible to the student and more satisfactory to the teacher. Comparing the teaching of materia medica and therapeutics thirty years ago with the present time, three features stand out prominently:

1. The retrogression of descriptive materia medica in its restricted meaning.

2. The establishment of special courses in practical pharmacy at the medical schools, conducted in suitable laboratories.

3. The development of pharmacology in its present acceptation—that is, the scientific investigation of the modes of action of drugs.

Smith protests against undue neglect of what may be termed old-fashioned materia medica—that is, description of the essential properties and chemical nature of drugs, so far as these elucidate the action of the remedy or its relations to prescribing. A modern course of lectures on materia medica should most certainly be founded on the bed-rock of pharmacology, that is, physiology; but there is still room—nay, he thinks necessity—for practical demonstration of the physico-chemical properties of drugs, and we need not even be ashamed of inculcating the utility of some familiarity at least with the pages of the British Pharmacopœia, which it is the fashion of some to despise or decry.

With a little thought and trouble numerous simple experiments, chiefly chemical, can be shown in illustration of the more important physiologic and therapeutic properties of drugs. General principles can be laid down, alliances pointed out, and broad features sketched, which connect together large numbers of drugs, into the individual details of which it would be wearisome and a waste of time to enter.

Take, for example, antipyretics and their mode of action; or the local action of astringents and caustics, experimentally illustrated by the reactions of various acids, and metallic salts upon solution of albumen. Or, again, the group of "aromatic compounds," where it is possible to give a brief but comprehensive survey of the general chemical and physiological relations of the subdivisions of this great group—namely, hydrocarbons, phenolic compounds, acids, and nitrogen derivatives (alkaloids, etc.). And in this aromatic group, which includes the antipyretic drugs, there is abundant opportunity for drawing attention to many interesting points in illustration of the connection between physiological action and chemical constitution.

Since the properties and motions of molecules which determine physical properties depend upon the motions and properties of atoms, which determine chemical reactions, the same common laws must govern both physical and chemical phenomena. And no one can doubt that the properties of the most complex compounds depend upon and are intimately correlated with the properties and configuration of which the atoms and molecules are built up. Bit by bit—here a little, there a little—we are gathering the kind of material which can best help us to gain insight into the principles of therapeutics. The problems of therapeutics, and for that matter of all biology, are, at the root of things, essentially chemical or physico-chemical in so far as we are at all able to interpret them or refer them to general laws. Different effects produced upon the senses of smell, taste, and sight are coincident with differences of arrangement in the molecules of the respective compounds which are built around a common nucleus.

Innumerable difficulties still await an answer; for example: Why should saccharin, which is an "ortho" compound, be so sweet, while the "para" compound is devoid of sweetness? Still, we can assert that great progress has been made in expressing the laws of mixture, combination, solution, dissociation, and chemical transformation on a generalized basis, and chemistry and chemical physics are gradually being brought under the sway of dynamical laws.

We have to take into account not only the number and kind of atoms in the molecule,

and their interior arrangement and grouping (constitution), but certain physical properties of compounds previously inexplicable have found their explanation in another development of chemical theory which has proved extraordinarily fertile. The doctrine of the spatial configuration of the molecule has done much to elucidate the difficult problems of isomerism in organic chemistry, and we cannot doubt that it will shed light upon chemical transformations occurring in the organism.

The flood-tide of discovery of new synthetic chemical remedies has, together with a few treasures which have risen on its crest, also washed on shore much rubbish of a pseudoscientific sort. Are we not daily worried with samples and with advertisements and circulars from eagerly competing firms, announcing new drugs or novel combinations, which Smith fancies are used chiefly by those who do not know how to employ the old ones. Scarcely are they advertised once before they are elbowed away by importunate newcomers. The advertisement is headed with an enigmatical name, standing over an appalling chemical formula, and probably ornamented with a structural or graphic diagram.

ALCOHOL AND INFECTION.

Whether alcohol increases our susceptibility to infection or not is a question of great importance, but one on which comparatively little work has been done. So far as experiments which have been made on animals go, it would seem that alcohol, like certain other substances, such as chloral, carbonic oxide, etc., does render the consumer more liable to fall a victim to the germs of infectious diseases, and this view is supported by clinical experience in the tropics and elsewhere. Seeing that brandy and other alcoholic stimulants are frequently given to patients suffering from infectious diseases, the question presents itself whether we are helping the disease or the patient most by their exhibition. Dr. Laitinen has recently experimented on no fewer than 342 animals — dogs, rabbits, guinea-pigs, fowls, and pigeons — with a view to settling the question. As infecting agents, cultivations of the anthrax, tubercle, and diphtheria bacilli were employed. These were chosen as types of acute infection, chronic infection, and a pure intoxication. The alcohol employed was, as a rule, a twenty-five per-cent solution of ethylic alcohol in water. In greater strength the alimentary mucous membrane of the birds became inflamed. Some of the dogs had fifty-per-cent solutions. It was given either by esophagus, catheter, or by dropping it into the mouth from a pipette. The dose varied with the animal and its weight, from one and a half cubic centimeters in the case of the pigeon to sixty cubic centimeters in that of some of the dogs. It was administered in several ways and for varying times; sometimes in single large doses, at others in gradually increasing doses, for months at a time, in order to produce here an acute and there a chronic poisoning. A full account of these experiments is given in an elaborate series of tables, to which we must refer the reader for details. Briefly, Dr. Laitinen found that in all these cases without exception the effect of the administration of alcohol, in any form whatever, was to render the animal distinctly, sometimes markedly, more susceptible to infection than were the controls.—*British Medical Journal*, Sept. 22, 1900.

EXCLUSIVE SOUP DIET AND RECTAL IRRIGATIONS IN TYPHOID FEVER.

The *Archives of Pediatrics* for September, 1900, has in it an article by SEIBERT, in which he advocates this method of feeding in the typhoid fever of childhood. He gives the following results from its use:

1. Delirium, headache, insomnia, vomiting, and tympanites usually disappeared within forty-eight hours of treatment.

2. Tympanites, nausea, and vomiting never developed in any patient, even when complicating pneumonia was present.

3. The fur on the tongue disappeared within a few days.

4. Appetite came frequently on the fourth day of treatment, even when the thermometer registered 102° to 103° F.

5. Even excessive diarrhea (fifteen to twenty-five daily stools) disappeared invariably within the first week of treatment.

6. In all uncomplicated cases the temperature began to decline within twenty-four to forty-eight hours after the beginning of treatment, and invariably would reach the normal figure within ten to twelve days.

7. In cases complicated by pneumonia, nephritis, or phlebitis, when treatment began the temperature usually remained in accord with the inflammatory conditions found until these also disappeared, while

the cerebral, gastric, and intestinal disturbances usually subsided as rapidly as in the uncomplicated cases, excepting anorexia.

8. Complications, when not present at the start, were very rare, and then usually developed within the first two days.

9. Intestinal hemorrhage was noticed in three cases, none ending fatally. Perforation did not occur.

It was immaterial whether this treatment was begun in uncomplicated cases during the first, second, third, or fourth week of an attack, for the above mentioned improvement always began within forty-eight hours, exactly like in gastroenteritis. Cases coming under treatment the first two weeks of illness usually presented more marked improvement during the first four days of treatment than older cases.

That milk given to a typhoid patient will cause a new rise of temperature after days of improvement on a soup diet, Seibert has demonstrated time and again to his house staff in the hospital.

Many of the pneumonia attacks complicating typhoid are due to secondary infection through the blood by organisms finding their way to the lung tissue from the intestine, like in the systemic infection of enteritis in children. By diminishing the quantity of absorbable toxic material in the intestine by appropriate diet and frequent rectal irrigations, we cut short the supply for systemic and pulmonic invasion, and materially aid the restitution of normal conditions.

Typhoid bacilli will readily grow in soup, but this food is so rapidly absorbed that in comparison to milk curds it cannot aid their sustenance long enough to injure the patient.

During the last ten years the writer has alluded to this plan of treatment in three publications—in the *Medical Record* of September 12, 1891; in the *New York Polyclinic* for March, 1893; and in the *Medicinische Monatsschrift* for July, 1894. In the June number of the *American Journal of the Medical Sciences*, 1894, Professor Yeo, of King's College in London, England, also called attention to the dangers of indiscriminate milk-feeding in typhoid fever. Other literature has not come to his notice.

CONVULSIONS IN CHILDREN.

WILSON tells us in the *Indiana Medical Journal* for August, 1900, that the treatment of convulsions in children naturally divides itself into two parts: first, that relating to the paroxysm itself, and secondly, that relating to the predisposing cause, viz., the systemic condition, of which the convulsion is only a symptom. As it is not always possible to determine the cause of a convulsion at the time of the attack, we are often compelled to treat the case in ignorance of the true exciting factor, as this cannot be fully investigated during the paroxysm. We should avoid, however, falling into the error of treating all cases alike, as it would certainly be wrong to treat an attack due to a high fever or sunstroke in the same way as one due to a reflex irritation from digestive disturbances. Fortunately, there are a number of agents always useful in quelling nervous outbreaks, from whatever cause, thus giving the physicians an opportunity of discovering and possibly removing the exciting cause.

The idea of a hot bath is so intimately associated with convulsions, in the minds of most people, that usually the child will have been subjected to this treatment before the physician arrives. In some cases this would be indicated, while in others it would be harmful. The warm bath, however (96° or 97° F.), Wilson believes, would in most cases, if not all, be useful, and harmful in none. The wet pack he has found highly useful, in cases associated with high fever. Hot applications to the feet (care being exercised to prevent burning), and if there is any fever, cold to the head, will be found beneficial. Sources of local irritation should be sought for and, if found, removed if possible. In this investigation the orifices of the body should be carefully examined for foreign bodies, or other sources of irritation. We should include in this investigation the mouth, nose, ear, anus, and urethra. In the male we should always look especially for an elongated and tight or adherent prepuce with retained smegma, for certainly this is often a contributing, and in some cases may even be the exciting, cause of the convulsion.

The patient should be undressed and put to bed in a well-ventilated room, not too light, and only those who are to nurse the child allowed in the room, as quiet and rest are among the most essential factors of the case. Among the medical remedies should be included chloroform, bromides, chloral, opium, asafetida, calomel, castor oil, and quinine, and in the after-treatment, to build up the patient, arsenic, iron, and strychnine.

During the attack, chloroform by inhalation Wilson believes to be the best remedy and if the physician is present during the

paroxysm, he should employ this agent. Bromides and chloral per rectum, if the child cannot swallow, are perhaps the most useful to prevent a recurrence of the convulsion. Opium in the form of the deodorized tincture, or preferably, during the attack, morphine in small doses hypodermically, is a most excellent remedy. In cases associated with indigestion or ptomaine poisoning, with vomiting in connection with either constipation or diarrhea, especially where the fecal discharges are of that offensive, sickening odor sometimes met with, there is nothing equal to small and often-repeated doses of calomel, followed later by a good dose of castor oil. Quinine, where there is evidence of malaria, will generally be found useful. If there is reason to think that the stomach contains undigested food, an emetic by the mouth, or in some cases apomorphine hypodermically, cautiously given, should be employed. Stomach irrigation may be indicated, and rectal injections, for cleansing purposes, are often very beneficial.

THE USE AND ABUSE OF SALINE INJECTIONS.

An editorial writer in *Obstetrics* for September, 1900, reminds us that so valuable is the saline solution introduced within the body to combat the two great evils of obstetrics, eclampsia and hemorrhage, that grave dangers are liable to result from a consequent overuse. Carried along by our enthusiasm and imbued with a sense of the innocuousness of water and a pinch of salt, we may not realize until confronted by an unhappy experience that it is quite easy to drown a patient with artificial blood serum.

The introduction of hot saline solution in obstetrical practice constitutes in this field probably the most important therapeutic measure of our times. So general is the belief in the toxemic theory of eclampsia, and at the same time so blind is our knowledge as to the actual nature of the toxic element, that it is quite natural to reason that the dilution and washing out of the blood by saline water will best meet the needs. And the results have been all that we could expect. Likewise in sudden and severe hemorrhages has it proven of very great value.

Of the three methods of introducing the liquid within the body, into the alimentary canal, subcutaneously, and directly into the vessels, we recognize as to method the danger of sepsis by the last two and the admission of air by the last. In most cases demanding the solution much haste is required, which gives more importance to the matter of sepsis than would usually pertain. The entrance of air into the blood-vessels is not likely to occur if hydrostatic injection is employed.

The two serious dangers in direct venous injection are overdistention of the heart and enforced expulsion of uterine thrombi. The first of these applies in eclampsia chiefly, and the second in hemorrhage. The strain upon the heart, directly and mechanically due to eclamptic seizures, is very great. The sudden and violent checking of respiration dams back the blood into the heart. Furthermore, the venosity of the blood weakens the power of the heart. In addition, the shock given the central nervous system still further harms the heart. The purpose of saline injection in eclampsia is to excite diaphoresis and diuresis, and at the same time to replace the expended fluid of the blood. It is easily apparent from these considerations that direct saline injection into the blood-vessels may be most injudicious. It may put a great additional strain upon the heart before relief by the roundabout method of toxic reduction, and consequent lessening of convulsions, can possibly supervene.

Is it not better to inject the saline solution into the colon and so secure our purpose without adding to cardiac strain? A large percentage of deaths in eclampsia is due chiefly to the strain on the heart rather than to toxic depression, asphyxia, or cerebral congestion.

The one class of cases in which intravenous injection is demanded is that suffering sudden loss of blood. The benefit to the heart and brain in such cases is little short of marvelous; and yet even here close watching is very necessary, lest too much be given.

In postpartum hemorrhage of severe extent, when the patient is bordering on syncope, blood loss ceases often through formation of thrombi in the uterine sinuses—a clotting possible only because of very weak, slow blood-pressure. Overfill the vessels with saline solution and these thrombi are forced out, while the uterus yet fails to contract. In this class of cases, after the chief effect is accomplished, it would be safer to change from direct to intestinal injection.

Another possible abuse of saline fluid injection is in employing it where neither toxemia nor hemorrhage is present, but for nervous shock from manipulations and

traumatisms. It cannot take the place of true stimulants.

Like most old home sayings or proverbs in which an overtruth is stated to secure epigrammatic brevity, the one suggested and properly corrected by the above is that "we can have too much of a good thing."

VENOMOUS SNAKES: THEIR BITES, AND HOW TO TREAT THEM.

McFARLAND concludes an article in the *International Medical Magazine* for September, 1900, in the following words: Briefly outlined, then, the treatment of snake-bite is (1) immediate interruption of the circulation of the bitten member, so as to prevent absorption of the poison; (2) free incision and enlargement of the fang wounds and forcible suction to extract the poison; (3) hypodermic injection of three to six drops of fresh ten-per-cent watery solution of chloride of calcium into about a dozen different areas about the wound; (4) strychnine given hypodermically to stimulate the respiratory center; (5) immediate and frequently repeated hypodermic injections of ten to twenty cubic centimeters of the antivenomous serum, or, as Calmette calls it, "antivenene."

In a large number of experiments McFarland has found it perfectly possible to save the animals from a certainly fatal dose of rattlesnake venom by administering with it one cubic centimeter of the serum of a horse immunized by a gradually increasing series of rattlesnake poison administrations continuing over many months.

The usual fatal dose of venom for a rabbit is one-half cubic centimeter of a one-per-cent solution of the dried venom given intravenously. The dose may kill in one minute, or death may be postponed for several days.

The admixture of the venom and antivenene in proper proportions, 0.5 cubic centimeter of venom plus one cubic centimeter of the serum of his horse, is followed by very little apparent disturbance.

The conditions observed when a rabbit is bitten by a serpent to some extent resemble those seen in man, and illustrate the improbability of our ever attaining ultimate satisfactory success in the treatment of venom wounds. The rabbit when bitten is immediately in an apparent agony of pain and terror, and springs aimlessly and hopelessly about, unable to act in its own behalf. The quantity of venom injected, which is usually many times a fatal dose, enters the circulation in a few moments, and the writer has seen the animals moribund within sixty seconds. No treatment could be of the slightest avail in such cases! When man is bitten, a similar condition presents itself, in that the accident is unforeseen, is attended with great pain, extreme apprehension, and inability to collect one's presence of mind. The quantity of venom injected must always be unknown, and the quantity entering the circulation guessed at. The most urgent need of the patient is for the immediate, unlimited administration of antivenene.

It would be a wise precaution for persons whose travels or occupations keep them in continual danger of snake-bites to provide themselves with the remedy and carry it with them, so that the emergency can be immediately met. To those who live in towns and in the well-settled districts of our country, this may seem like an extreme precaution; but there are many whose occupations of berry-picking, lumbering, mining, hunting, engineering, etc., carry them into wild and snake-infested countries, to whom the possession of a snake venom antitoxin with even a limited application would come as a boon.

ANESTHETICS AND URINARY SECRETION.

THOMPSON, of Belfast, Ireland, states in the *British Medical Journal* of September 22, 1900, his views in regard to this subject. He tells us that his experiments were performed on dogs. In most cases urine was received from the ureters by means of cannulæ, inserted sometimes from the front, sometimes from behind. Blood-pressure was recorded in these cases. In another class of experiments no operative procedures were carried out. Urine was simply drawn from the bladder at stated periods before and after the administration of the anesthetic. In the earlier experiments, undertaken as control experiments in connection with another research, morphine was previously given hypodermically. An abstract of these appeared in the *British Medical Journal* for April, 1899, p. 793. In the latter experiments morphine was omitted. The effects of (1) ether, (2) chloroform, (3) A. C. E., and (4) a mixture of two parts ether with one part chloroform, were studied. The anesthetics were administered through a tracheal cannula in the first series of experiments, and by simple inhalation in the later series.

1. Ether caused an increased diuresis in

the great majority of the experiments, which continued after the anesthetic was removed. The percentage output of nitrogen suffered a diminution corresponding to the increase of urine. The total excretion per hour of nitrogenous substances was, however, increased. In one experiment (second series) the amount of urine was diminished; the diminution, however, was followed by an after increase.

2. Chloroform in the greater number of cases caused a diminution in the secretion of urine, with, for the most part, an after increase. The output of nitrogen per cent suffered a diminution except where decrease in the quantity of urine was very marked. In all cases the total excretion of nitrogen per hour was greatly reduced, followed by an after increase. One experiment (first series) showed a considerable increase in the quantity of urine secreted.

3. A. C. E. The immediate effects of this compound were variable, but all the experiments showed a very pronounced after diuresis. In one experiment total suppression lasting two and a half hours was produced, followed after removal of the anesthetic by a somewhat augmented secretion. This dog proved to have had albuminuria previous to the experiment. The total output of nitrogen was, as a rule, increased, but not invariably; the percentage output corresponded inversely to the outflow of urine. The variability in the results was probably due to the predominating effect of one or other constituent of the anesthetic.

4. Ether-chloroform mixture as used produced a very slight diminution in the outflow of urine, the average of seven experiments being 10.75 cubic centimeters for the normal hour, 8.85 cubic centimeters for the anesthetic hour, and 9.4 cubic centimeters and 10.3 cubic centimeters respectively for the two subsequent hours. The output of nitrogen per cent was correspondingly affected, per hour very slightly increased. For kidney experiments this is, therefore, *par excellence*, the anesthetic to be selected.

After all of the foregoing anesthetics the chlorides suffered a marked diminution.

Abnormal constituents also occurred in the above urines. In some cases albumin was observed; but in all of these cases, with one exception, the urine was slightly tinged with blood. It was concluded, therefore, that this furnished the albumin, and had probably arisen from a slight lesion of the ureteral mucous membrane by the end of the cannula. Such a lesion was discovered in every case in which it was sought for. The exceptional case was that in which the dog had suffered from albuminuria prior to the experiment. This was shown by the presence of albumin in the urine obtained from the bladder. The author therefore has little doubt that some fallacy has crept into the experiments of Kemp, where he found the presence of albumin in the urine to be very frequent after the administration of ether.

Reducing substances were found in the majority of the urines, even in those of the second series, where morphine was not administered, and to which the following remarks only now refer. The urine after chloroform gave crystals resembling those of glucosazone; the urine also fermented, though not very typically. There can be little doubt, therefore, that grape-sugar was present. Osazone-like crystals were also obtained after the administration of ether. The urine required at least an hour's boiling, and the crystals separated only after standing over night. This urine did not always ferment.

The urines were also tested for glycuronic acid compounds both before and after boiling with a mineral acid. All of the recognized reagents gave, however, only negative results. Reactions for pentose likewise failed.

The volume of the kidneys was studied by means of Roy's oncometer under the influence of chloroform and ether-chloroform mixture. Both these anesthetics gave a fall in volume, more marked in the case of chloroform. The number of experiments was not, however, sufficiently large to speak conclusively.

THE EFFECTS OF INHALATION OF CERTAIN ANESTHETICS ON THE KIDNEYS.

The *British Medical Journal* of September 22, 1900, contains an article by BUXTON and LEVY, in which they conclude that the study of their tracings and a consideration of the details of their experiments lead them to regard the specific ether effect not as a necessary and initial result of ether narcosis, such as Drs. Kemp and Thomson appear to regard it, but as the occasional result of the prolonged action of ether when circulating in the blood in such excessive quantity as is nearly toxic to the vital centers of the medulla. Such a dose may, they consider, in some cases be actually toxic to the kidney, in that it acts directly on the kidney arterioles, exciting their contraction, thus producing the "specific effect."

After cessation of administration of the anesthetic the urine secretion is gradually resumed. They are unwilling to ascribe directly to the ether such a suppression of urine as occasionally follows an operation under this anesthetic.

Their results in respect of the administration of chloroform need not be enlarged upon here, as they agree in the main with those described by Drs. Kemp and Thomson.

Continuing further, they think that taking their clinical observations into account, the following points deserve attention:

In ether cases the quantity of urine passed after the operation is, in the majority of instances, reduced in amount. Probably the abstinence in liquid both immediately before and after the operation, as well as the vomiting which in some cases occurs, and the purging incident to the routine preparation of the patient before operation, may have had considerable influence in bringing about this reduction. Other but less usual causes acting in the same direction are the diminished blood-pressure due to surgical shock, especially in the case of abdominal operations, and also the reflex inhibitory action on the kidneys in certain operations, such as those for the relief of hemorrhoids. They think that in certain cases direct manipulation of kidney and ureter has to be considered in this connection.

It cannot be too strongly insisted upon that this reduction is in the urinary water only. The increase in the specific gravity of the urine after operation, which has been already pointed out as occurring constantly, sufficiently demonstrates that the functional activity of the kidneys concerned with the excretion of the solid constituents of the urine is not generally seriously affected by the ether.

If, as we may be led to believe from the experiments of Drs. Kemp and Thomson, the kidneys are materially affected by ether even in light narcosis, and that albuminuria early gives evidence of this renal derangement, it is surprising that most, if not all, patients who inhale ether should not show the results of the ether effect upon their kidneys, and their clinical tables palpably fail to indicate that such is the case.

The fact is, there is little evidence tending to show that ether exerts directly any deleterious influence on the kidney parenchyma. The albumin found in the urine of the dogs which had undergone experiment they believe is not to be explained in this way, but by the indirect action of the anesthetic, in that it produces, when pushed to an excessive dose, an ischemia of the kidney—that is, the specific ether effect.

Nussbaum's experiment of temporary ligature of the renal artery of the frog has demonstrated how deprivation of arterial blood damages the renal epithelium, and causes the appearance of albumin in the urine. A similar deprivation of arterial blood by reason of intense and prolonged contraction of the renal arterioles, such as they found occurring in the specific renal effect of ether, would naturally lead, they should expect, to the appearance of albumin in the excreted urine.

A less intense and less prolonged deficiency of blood-supply produced by a temporary fall of blood-pressure, such as follows the administration of chloroform or of a toxic dose of ether, should naturally be followed by the occurrence of albumin in smaller quantities.

They do not consider that any specific ether effect and consequent kidney ischemia and albuminuria should ever occur in the course of ether anesthesia for operative purposes, provided the administration be performed with reasonable care. They think, however, that in the case of ether, owing to its comparative safety as far as the vital centers are concerned, there is a danger lest, owing to a false sense of security, excessive quantities are administered. Where quantities of ether are given—where the patient is "soaked" with ether—one meets with "ether effects" on the kidneys. Such effects are probably transient in most cases, and produce no acute or lasting mischief; but even these are not, they submit, necessary, and are in fact the result of the abuse rather than the use of ether.

PROPHYLAXIS TO BE ADOPTED IN SUSPECTED CASES OF POSTPARTUM HEMORRHAGE.

The London *Lancet* of September 15, 1900, has in it an important article, in which Byers gives the following advice:

When from the symptoms we suspect the occurrence of hemorrhage after delivery, the following precautionary measures should be adopted: (1) During pregnancy the patient should be advised to take exercise and keep her skin (baths) and bowels (purgatives) acting. She should avoid all stimulants of any kind, and if there is albuminuria a milk

diet should be enforced. (2) During confinement the fetus should be delivered slowly, its birth being followed down by the hand on the fundus, and it is good practice (provided the head or breech presents) to puncture the membranes when the os is nearly fully dilated. By this measure the pains are increased in energy, and it also favors tonic contraction of the uterus after expulsion of its contents. Further, from the very onset of labor the patient should be kept lying, and as soon as the os is fully dilated Byers has found the practice recommended by the late Dr. McClintock, of giving two teaspoonfuls of fluid extract of ergot, most useful.

In cases where he suspects the occurrence of postpartum hemorrhage, Byers has prescribed for a couple of weeks before delivery ten grains of chloride of calcium thrice daily. This practice gave good results, but whether the medicine or the careful management of the third stage of labor deserves the credit it is, of course, difficult to say. Dr. Lombe Atthill, of Dublin, in cases where from the experience of previous labors he anticipated postpartum hemorrhages, or where in the progress of tedious labors the uterus became exhausted, so that he suspected hemorrhage after delivery, gave in the former case for three weeks before the expected labor a mixture of liquor strychnia with infusion of ergot, adding iron if the patient was anemic, and hydrochloric acid if she was plethoric. He gave this mixture for from seven to ten days; then, after ceasing its administration for forty-eight hours, he let the patient continue to take it. The mixtures are as follows: Liquid extract of ergot, two drachms; solution of strychnia, one drachm; diluted hydrochloric acid, two drachms; infusion of ergot to six ounces—a measured tablespoonful to be taken thrice daily. In anemic women the hydrochloric acid was replaced by one drachm of iron and ammonium citrate. In the latter case (exhausted uterus in a tedious labor) he recommends a dose of ergot with ten drops of liquor strychnia in the first dose and five drops in the next, if necessary. Endometritis in a married woman at the childbearing age should be carefully treated.

As there is hardly any complaint met with in midwifery needing greater pluck and more resourceful and prompt action on the part of the attendant, it is good practice in all confinement cases to see, as the second stage of labor is advancing, that everything is conveniently ready, such as hot water, the douche, with double-current intra-uterine tube (Bozeman's or Budin's), etc. The accoucheur, fortified in this way, acts with much greater self-reliance should hemorrhage suddenly set in. Supposing the placenta and membranes have all come away, and that then suddenly bleeding sets in with a relaxed uterus, what should be our line of practice?

1. Byers thinks the first measure to be adopted is external uterine massage. By this means the uterus is stimulated to contraction, clots are expelled, and often this method is sufficient of itself to arrest the hemorrhage.

2. Should this plan fail, he then recommends the use of hot water. A double-current instrument (Budin's or Bozeman's) should be employed, and it is a great advantage at the same time to draw the uterus by catching the anterior lip of the cervix with a vulsellum forceps. Certain precautions in the use of hot water are necessary: (1) In maternities a bath thermometer is of use as indicating the proper temperature (118° F.) to be used, but in private practice the best rule is to use the water at that temperature which the hand immersed in it will bear; (2) the hot water should be used in large quantities; (3) the intra-uterine tube should be passed up to the fundus so that the whole inner surface of the cavity is bathed; (4) some use a little creolin in the hot water; he prefers salt—a teaspoonful to the pint. Never use any corrosive sublimate in the hot water, the objection to it being that, owing to the open state of the uterine vessels, absorption takes place rapidly, with the risk (he has seen its occurrence) of mercurialism. Cold water should not be employed; it is not sterile, and its low temperature has a prejudicial effect on the anemia, while the hot water is distinctly stimulating.

3. The introduction of the hand into the uterus. As there is no operation, he believes, so dangerous to a parturient woman as the introduction of the hand of her attendant (owing to the admitted difficulty of rendering it aseptic) into the uterus, this practice should only be done when the indications are clear. If hemorrhage sets in before the placenta comes away, and if, owing to adhesions, external abdominal massage fails to expel it, then the hand must be introduced to separate and withdraw the placenta. Again, if a lobule of placenta or a piece of outlying after-birth is retained, the hand should be introduced to remove the retained parts, which prevent by their presence the uterus contracting on its open vessels. After the

hand has been withdrawn the uterus should be carefully douched with a hot creolin lotion. In the absence of the clear indications he has mentioned, the use of the hand inside the uterus is, he believes, bad practice. No doubt it stimulates the uterus to contract, but hot water will do this equally well, and there is not the same risk of septic poisoning as when the hand is introduced.

4. Should the preceding measures fail, then we may try bimanual compression, but Byers's own experience of it is that it is very fatiguing to the accoucheur and trying to the patient; and he prefers

5. Gauze plugging of the uterus. A word about its technique. One may, as text books teach, need three lengths of four or five yards each, from three to four inches broad, but he has been struck with the fact that when the uterus is drawn down with the vulsellum, in many cases very much less of the gauze is needed. The plan he can recommend from personal experience is to carry in the obstetric bag one of Dührssen's sealed tins of sterilized iodoform gauze. This tin takes up little room, it can be opened quickly, and it contains sufficient gauze to plug the uterine cavity. Great care should be taken to plug the uterus tightly up to the fundus. The hold given by the vulsellum forceps allows sufficient counterpressure when packing the cavity of the uterus. The gauze acts by stimulating the uterine muscle to contract, but also by insinuating itself into the mouths of the bleeding vessels, and so directly compressing them.

6. Drawing the uterus downward. Should we meet a case where notwithstanding the gauze packing hemorrhage continues, Byers thinks we should first (on the assumption that our previous technique has been at fault) remove the gauze, wash out the uterine cavity with a creolin douche, and reapply—packing very firmly—the gauze. If the hemorrhage again returns, he would strongly recommend the firm drawing down as far as possible of the uterus with tenaculum forceps passed through the lips of the cervix. This method acts, he thinks, by kinking and compressing the uterine arteries, as is seen often in the operation of vaginal hysterectomy. In such circumstances Professor Schauta, of Vienna, thinks atheromatous vessels are present in the placental area. He advises laparotomy in hospital practice, or in private practice eversion of the uterus into the vagina by pressure on the fundus, so that the bleeding vessels may be caught, or an india-rubber ring (as recommended by Kocks), or a gauze bandage may be fastened round the everted uterus so as to cut off the circulation. The compression should not be maintained for more than six hours to avoid gangrene, and Professor Schauta prefers that the vessels should be caught directly rather than that pressure should be applied to the whole uterus. When the bleeding is stopped the uterus is to be reinverted. He has no personal experience of this method. He simply mentions it on the authority of the distinguished Viennese obstetrician.

7. Injection of iron. He has not used the injection of perchloride of iron solution for the past five years. It is a remedy not without danger; it causes a certain amount of superficial injury of the uterine wall, which forms a suitable nidus for the growth of germs; and if it fails plugging cannot be done, owing to the effect that the iron has on the tissues. He has been told that gauze plugging has replaced the use of iron in bad cases of postpartum hemorrhage in the Rotunda Maternity Hospital.

The treatment which Byers has mentioned, applied to cases of uterine inertia giving rise to hemorrhage after the delivery of the placenta, is as follows: Should bleeding set in before the after-birth is delivered, pressure should be at once used to bring it away, and if this fails the hand should be introduced to separate and withdraw the placenta. Should a portion of the placenta remain or a piece of membrane, or should there be the suspicion of a uterine tumor, the hand must also be introduced for diagnosis and treatment. In all such cases the uterus should afterwards be most carefully douched out with a hot creolin lotion.

THE PRESENT-DAY TREATMENT OF DIABETES.

WILLIAMSON writes under this interesting heading in a recent issue of the *London Practitioner*. He points out that it is the practice of many to allow patients the use of saccharin, but it is worth mentioning that Bornstein has observed the occurrence of dyspeptic symptoms following upon the use of this substance, and Boas has expressed his opinion that in certain cases saccharin hinders fermentation in the intestinal tract. When prescribing saccharin Lépine, of Lyons, recommends that small doses only should be directed to be employed, and an equal quantity of bicarbonate of soda should be added.

The use of antipyrin in diabetes has received a by no means unqualified acceptance. Mousse accepts the claim on the part of the advocates of antipyrin that there is a diminution in the amount of sugar from its administration, but he contends that this result is only of a passing character. Opitz, however, seems to have had a more favorable experience, and Lépine gives it as his opinion that antipyrin is sometimes most useful, frequently diminishing excessive polyuria and reducing the amount of sugar. Lépine, however, modifies his statement by declaring that antipyrin should be used only in those cases of diabetes where the hyperproduction of sugar is very great. There is the further fact that a long continuance of this drug is not advisable.

Boric acid has been found of use, and in two cases which have been published success has been announced, the results being classed as "cures." In one case, where the patient was a boy aged eighteen years, the diet is mentioned as having been of skimmed milk; in the other case the age of the patient was twelve, and he was the son of the medical man who recorded the favorable result. It is of some interest to note that the prescription used in the former case was:

℞ Acid borici, gr. xx;
Glycerini, f ʒ j;
Liq. arsenici hydrochlor., ♏ v;
Liq. strychnin. hydrochlor., ♏ x;
Aquæ, q. s. ad f ʒ j.

Ellis advances the opinion, on the strength of some cases in which there has been noticed reduction of sugar after moderate and careful bicycling exercise, that in the cases of the malady where the patients can safely bear the stress and strain, good effects may be expected in suitable instances from the practice of cycling.

An instructive experiment recorded by Murrell points to the helpful character of thyroid medication in diabetes. A diabetic patient was given fresh sheep's thyroid in four-grain pills every four hours, with the result that her general condition was much improved, the amount of urine passed was markedly diminished, and the symptom of thirst became much less distressing. This, however, did not occur without some preliminary difficulties before toleration of the drug was secured. The weight of the patient very gradually decreased, and in this particular the treatment seems to be lacking in a very important point. On the thyroid being discontinued the daily amount of urine passed rose, and the patient again experienced great thirst with the accompanying dryness of the mouth. It is, therefore, only to be expected that much attention has been given to the question of the administration of thyroid in diabetes, but the recorded results of investigators are not in agreement. In the case of one diabetic patient the excretion of sugar was increased to twice the amount on the ingestion of ten grains per diem of dry thyroid.

So great a success has attended the treatment of myxedematous patients with thyroid that the feeding of diabetic patients on pancreas was attempted, and it was hoped that it might result in great benefit; but, according to Dr. Hale-White and others, it has been proved conclusively that feeding diabetics on pancreas does not do any good.

A. Zelnichin has put forward a claim for the value of a substance called spermin in the treatment of diabetes, and according to this observer the effect of this remedy, which is manufactured from the testicular substance of dogs and bulls, is marked by amelioration of symptoms.

The efficacy of the treatment of diabetic coma by saline injections has been given in detail by Roget and Balvay, who report concerning a patient aged twenty with complete coma for forty-eight hours accompanied with convulsions. Within a few hours after thirty-five ounces of saline solution had been injected into the left median cephalic vein improvement took place, the patient opening his eyes when spoken to, and the amount of urine passed being described as "abundant." The treatment was continued till the ninth day of the coma, and resulted in the disappearance of the symptoms. During the time he was treated the patient received about fifteen pints of saline solution, and it is also to be noted that three enemata of seventeen ounces each were administered. It is undoubtedly a step in the right direction to have ready at hand the means of enabling patients in diabetic coma to regain consciousness, and it is satisfactory to hear that out of twenty cases collected by Roget and Balvay recovery is said to have occurred in two. It would appear that the likelihood of recovery seems to depend on whether the kidneys are in a fairly healthy state; in those cases where there is disease of the kidneys an improvement only is to be reasonably looked for. In England the strength of the injection of the saline is about seven-tenths of one per cent, and sodium chloride is the salt generally

used. The amount injected varies; but it may be said that something under four ounces during twenty-four hours has been known to be given with successful result. It has been recommended that if the attack of coma is not fully developed the subcutaneous method of giving the injection is desirable, but that in a patient already exhibiting a comatose condition the best course to follow is to perform intravenous injection.

Herzog relates the details of a case of diabetic coma treated by subcutaneous saline injections, in which there was a partial return to consciousness and a fair degree of improvement of the condition, though ultimate recovery was not attained. This author also gives his views in regard to the method of giving the injection, which he urges should be subcutaneous, not intravenous, and should also be ordered at frequent intervals.

Authorities on the treatment of diabetic coma all unite in recommending that remedial measures should be instituted when coma is imminent, and some very practical remarks upon how it is possible to forestall the onset of coma were lately made by Dr. Hale-White in the course of one of his visits at Guy's Hospital. If a sudden diminution in the amount of sugar be found in the urine in a case not under treatment directed to that object, it might fairly be supposed that coma was about to come on. If a patient, the subject of diabetes, complains of sickness and pain in the stomach, the case is one that should be regarded, in Dr. Hale-White's opinion, as exceedingly likely to develop an attack of coma. There is nothing more likely to produce coma than worry and fatigue, and it is important to induce people liable to coma to live very quietly. Referring to treatment by injection of saline fluid, Dr. Hale-White said the reason of it restoring the patients to consciousness is not known, but probably there is in diabetes, as a result of perverted metabolism, a poison or toxin which is diluted by the saline which is injected. In the case of the diabetic patient on which Dr. Hale-White made these comments, headache was quite relieved, and the slight coma disappeared, under a treatment of sodium bicarbonate — 200 grains a day, and 400 grains a day subsequently.

In those cases of diabetes where the complication of acetonuria is present, Hirschfeld advises that the patient should be treated by rest and by overfeeding. The diet should consist of carbohydrates in small quantities, not too great abundance of albuminoids, fat, and alcohol.

The question of the advisability of operating on surgical diseases in patients the subjects of diabetes has lately attracted considerable notice. According to Fisk the presence of glycosuria does not in itself constitute an absolute contraindication to surgical relief, but he adds the very important reservation that great judgment must be exercised in the selection of cases and in the determination of the kind and extent of the operation to be performed. The author states that this opinion has been arrived at after considering the views of various well known surgeons and from personal observations. Provided infection does not occur, operative wounds under these conditions heal kindly but slowly, especially granulating wounds. The object in mind in every operation in a diabetic patient should be so to plan the technical details that the vascularity of the tissue involved shall be as little interfered with as possible.

METHYLENE BLUE AS AN ANALGESIC.

KLEMPERER (quoted in *La Médecine Moderne*, June 27, 1900) has recently published his results obtained by the employment of methylene blue as an analgesic in twenty-seven cases of sciatica. In eight cases it failed entirely, in six the pains marvelously disappeared in five days, and in the remaining thirteen the sciatica resisted the treatment for several weeks, but the pains were less frequent and the patients were enabled to sleep at night. Three to six capsules containing 0 45 gramme (about seven grains) were given daily. Slight gastric disturbances occurred, but they involved no serious inconvenience, and any pain during micturition was easily annulled by adding a little nutmeg to each dose. The writer has found the medicament very useful in tabes, neuralgia, and myalgia, in diminishing the intensity of the pains. In these conditions it is best to commence with 0.25 gramme (four grains) twice a day, and very gradually increase the dose up to one gramme (15½ grains) or more. The substance must be absolutely pure, otherwise gastric, toxic, and diarrheal troubles will follow. It should be administered in well-made cachets, so as to avoid any coloration of the oral cavity. The patient should be warned of the urinary change of color, and that some slight vesical spasm

and dysuria may occur. The action of the blue causes at first a numbness, passing gradually into analgesia. Its action is rapid, but not of long duration; hence it is necessary to continue the medication whilst any pain is felt. Local effects can also be obtained, but the disadvantage of its coloring power has not yet been overcome. It has been proposed also to use the blue in subcutaneous injections, but at present there have been no experiences published. It is claimed that methylene blue in excessive doses does not cause the depression, etc., of increased amounts of the ordinary analgesics, and is worthy of extended use.—*British Medical Journal*, Nov. 10, 1900.

EXTRACT OF SUPRARENAL CAPSULES IN THE TREATMENT OF DISEASES OF THE NOSE, THROAT, AND EARS.

GLEASON states in the *International Medical Magazine* for November, 1900, that when applied to the mucous membrane of the ear or nose, a ten-per-cent extract of suprarenal capsule produces a blanching and shrinking of the inflamed parts, which sometimes persists for several hours. In cases of earache where the intratympanic mucous membrane is exposed from previous perforation of the drumhead, an attack of acute otitis can usually be aborted by the instillation of the extract. A few drops should be instilled into the ear, and after a few moments should be removed by means of absorbent cotton, in order that an excess of the solution should not remain to putrefy; for in so warm a place as the ear putrefactive changes will occur in the solution within a few hours. In the treatment of acute nasal catarrh, suprarenal extract may be employed after the congestion and swelling of the nasal mucous membrane has been reduced by cocaine. For this purpose the extract is probably inferior to a four-per-cent solution of antipyrin, which, if liberally sprayed over the nasal mucous membrane, will maintain the contractile effects of the cocaine for several hours and prevent any reaction.

By the use of suprarenal extract operations within the nose can often be rendered bloodless. It has been claimed that when applied to the nasal mucous membrane, suprarenal extract is the most powerful astringent known. It is a mistake to suppose, however, that its use will prevent hemorrhage from a large artery within the nose, should such a vessel be severed during an operation. Dr. Gleason has had profuse hemorrhage during a nasal operation after the most thorough application of suprarenal extract to the nasal chambers. It is stated also that secondary nasal hemorrhages are more likely to occur if the extract is dispensed with.

The drug has been used with considerable success in the treatment of hay-fever. It should be applied locally and also given internally. A convenient method of administration is as follows: The patient is supplied with gelatin capsules each containing two or three grains of the powdered gland. He is directed to take one of the capsules every two hours, watching for any irregularity of the heart's action or other disagreeable heart symptom that may occur; and should any such symptom present itself, to take the capsules at less frequent intervals. As a matter of fact, while no very alarming symptoms have been observed to follow the ingestion of suprarenal extract, yet some patients complain of irregular heart action, slight vertigo, etc., while taking the remedy in even such small doses as two or three grains every two hours. The patient should also be directed to dissolve one of the capsules, gelatin and all, in a teaspoonful of hot water, filter the solution, and apply it by means of a pledget of absorbent cotton to the interior of the nose. The pledget of cotton should be sufficiently large to fit somewhat snugly within the nasal chamber, as a moderate amount of pressure is beneficial and seems to aid the action of the extract in reducing the congestion and swelling of the mucous membrane. The saturated pledget of cotton should be allowed to remain within the nose for half an hour or more, and renewed sufficiently often to secure the desired results. A convenient method of application is for the patient to wrap a small mass of absorbent cotton about the end of a crochet needle from which the hooked end has been removed, dip the cotton into the solution, and insert it within the nose. The cotton is readily released from the crochet needle by twisting the latter in the opposite direction from that in which the cotton was wrapped. In the hands of one of his assistants, Dr. Gleason states this method of treatment has been remarkably successful. In one case all symptoms of hay-fever disappeared after the first day's use of the extract. The treatment was begun during the height of the attack.

USE AND ABUSE OF POTASSIUM IODIDE IN OPHTHALMIC PRACTICE.

BAKER states in the *Journal of the American Medical Association* of November 17, 1900, that:

1. Iodide of potash should generally be administered in rapidly increasing doses until from 1 to 500 grains is given daily.

2. The drug should always be given after eating, and well diluted with water.

3. Frequent hot baths are essential to the best results in the use of the remedy.

4. Not infrequently large doses will be tolerated when smaller ones cannot be well taken.

5. The use of the large dose is not limited to syphilitic cases.

6. Large doses are indicated in optic neuritis, ocular paralysis, choroiditis, serous iritis and relapsing iritis, cyclitis, and interstitial keratitis.

7. It is contraindicated in gray atrophy of optic nerve and in most cases of postneuritic atrophy.

8. Albumin in the urine, generally speaking, is a contraindication for large doses of iodide.

9. Young children do not take the iodide kindly, and it should be administered cautiously.

10. The remedy is of doubtful value in early syphilitic iritis.

11. Large doses are of doubtful utility in the removal of postoperative exudates, but should be given further trial.

MALARIAL HEMOGLOBINURIA.

In a discussion on this subject published in the *Journal of the American Medical Association* of November 17, 1900, Dr. BURNS makes a plea for harmony in the treatment of hemoglobinuria. As his reports show—of course, sixteen cases do not show a large clinical report—more than one-half the cases died under the treatment, without quinine. It is the custom for many physicians in the Southern States to use no quinine in the treatment of hemoglobinuria. One year he was losing all his cases, and he determined to try one case and see if the patient would live if he used quinine. This patient had considerable jaundice and an enlarged spleen—a typical case, in short, wherein those who fear quinine would have withheld that agent. He had been given quinine sulphate in large doses by the mouth, and on the third day developed hemoglobinuria. How easy it would have been to have arrived at a quinine hemoglobinuria. Quinine saved that man's life, he believes. Dr. Burns began at once not to withdraw, but to get quinine into the circulation, giving 7½-grain doses of the hydrochlorate every four hours intragluteally, and to his surprise the patient got well. Moreover, this same person was treated successfully with quinine in a second attack some months later. Ever since Dr. Burns has treated every case with calomel, turpentine, hot applications, and beef juice. He has also been using the normal salt solution per rectum, which he finds replenishes the blood and allays thirst. This mode of treatment, with quinine applied, in the past five cases has proved successful. He objects to the term postmalaria in any form; he knows of no postmalarial condition, except convalescence and sound health. He finds estivo-autumnal parasites in all cases of hemoglobinuria, and knowing the great hemolysis wrought by these agents, he would doubt the wisdom of withholding the one agent which would eliminate the plasmodia from the blood. He no longer fears quinine in hemoglobinuria.

A SPECIAL INHALATION MIXTURE IN PULMONARY DISEASES.

PENROSE concludes a paper in the *Johns Hopkins Hospital Bulletin* for November, 1900, by calling our attention to the great quantity and variety of medicines taken internally for acute coryzas, bronchitis, grippe, and which are appalling to the conscientious physician. In addition, numbers of compound remedies with very elaborate titles are daily prescribed for these conditions, some of the ingredients of which, or at least their dosage, too often escape the memories of those using them. Inhalation methods are the rational means for combating pulmonary affections. Internal medication should be used as an accessory treatment, as, for instance, a sedative mixture to relieve excessive coughing, etc. Dr. Penrose does not consider diet in this category. Change of climate, mountain air, etc.—in reality inhalation treatments—are all very well for those who can afford them, but what can be done for the masses to whom this is an impossibility? Because many have found inhalations of various kinds of little value in tuberculosis, there is no reason to suppose the best treatment will not be found along these lines. The good effects of oxygen in

pulmonary disorders are raised to a maximum when combined with the heated vapors of an inhalation mixture. The mixture he uses has never yet proved irritating or dangerous to the healthy lungs, although possessing marked antiseptic properties. At the start the following formula is used: Creosote (beechwood), olei terebinthinæ, ää drachms iv; tincture benzoini co., oz. iij (one drachm of this mixture being placed in a pint of hot water). As the patient becomes more accustomed to the fumes—*i. e.*, does not cough or choke during inhalation—gradually more of the creosote and oil of turpentine is added till a mixture of equal parts of each is obtained: Creosote (beechwood), olei terebinthinæ, tr. benzoini co., ää oz. j.

Inhalations to be effective should be systematic and of sufficient duration—ten to fifteen minutes at least. Indispensable adjuncts are breathing exercises and general gymnastic work. No physician can hope to have success in pulmonary diseases unless he makes a thorough study of chest development, calisthenics, and other forms of exercise; in fact, it is necessary that he have a love for this kind of work himself, and by personal example try to awaken in his patients—who, as a rule, are phlegmatic or indifferent—the enthusiasm so important in this kind of work. The excellent work by Dr. Dennison, of Denver, entitled "Exercise and Food in Pulmonary Disorders," demonstrates the great advantages of such exercises.

The bacteriological examination made of the sputum in a number of the author's cases proved the marked antiseptic effect of the above inhalation mixtures, especially on the pus cocci. Now even if, as many authorities have shown, tubercle bacilli, being walled off, are protected from all inhalation vapors, when the severe symptoms so often due to secondary infection are eliminated and other portions of the lungs exercised and disinfected, beyond question a better chance is given to resist the spread of the morbid condition and to wall off completely the tuberculous area.

In addition some persons will use an inhalation who could never be induced to take breathing exercises. The act of inhaling is, however, a very efficient exercise, as any one can easily prove.

Inhalations rarely upset the stomach like cough syrups, etc., and eliminate much of the fatiguing routine of hourly medication. Children will inhale smoke, as they often call it, willingly, if a little diplomacy is used, where they often require force and much coaxing to take medicine.

The science of medicine has advanced beyond the point where we look to it merely for cures. The twentieth century brings with it more appeals than ever for instruction in the prevention of diseases, and especially of those of the respiratory apparatus. If we teach the tailor how to avoid a crooked back, the factory girl how to expand her lungs and utilize what fresh air she occasionally gets; if we place in the hands of the masses a simple method of avoiding colds, etc., we will find our clinics smaller, but our humanity larger.

THE USE OF THE SUPRARENAL CAPSULE IN DISEASES OF THE LOWER AIR-PASSAGES; A PRELIMINARY REPORT.

In the *Medical Record* of November 17, 1900, FLOERSHEIM reaches the following conclusions:

1. Indications for suprarenal powder: The suprarenal powder is indicated in acute and chronic bronchitis, bronchiectasis, asthma, congestion and edema of the lungs, hemoptysis, and in some cases of pulmonary tuberculosis, especially in those associated with hemoptysis.

2. Method of administration: The suprarenal powder was administered in the form of three-grain capsules on account of their convenience. The powder is to be chewed without water, and then to be swallowed in a few moments.

3. Rapidity of the action of suprarenal powder: The action became apparent in from two to fifteen minutes.

4. Permanence of the action of suprarenal powder: In some cases the action of the suprarenal powder was permanent, while in the majority of cases the action was temporary, continuing from ten minutes to six hours.

THE DOSAGE OF DIPHTHERIA ANTITOXIN.

An article in the *British Medical Journal* of November 10, 1900, tells us that it appears from inquiries which have recently been addressed to the above named journal that the question of the dosage of diphtheria antitoxin is one which still presents difficulties to practitioners. Nor is this surprising.

In the first place the dosage of the serum remedies is based upon principles very different from those which hold in ordinary pharmacy; we have to deal with units instead of grains or minims. In the second place, in some parts of the country diphtheria is rare, so that a practitioner resident therein may have had no occasion to treat a single case since the introduction of the remedy into England in 1894. Consequently, the following remarks, based upon an experience of a very large number of cases extending over six years, may be found useful, and are offered in the hope that they may prove of service to some practitioner whose experience of the treatment of the disease since the introduction of antitoxin has been limited.

In the first place, it must be pointed out that it is impossible to give a fatal overdose of antitoxin; it is not like opium and strychnine and such drugs, to the dose of which there is a definite limit. Why not, therefore, it may be asked, give a large dose straight away in every case, whatever its degree of severity? Against this there are three reasons: First, the volume to be injected is large with very big doses, which increases the discomfort at the seat of injection, and is more likely than a small dose to give rise to the rash and febrile disturbance which is often met with a week or so later; secondly, the expense of the treatment is increased, especially if, to lessen the volume, a concentrated serum be employed; thirdly, it is quite unnecessary to inject a large dose in a mild case. Even in the severe forms of the disease there is a limit dose, to exceed which is merely to waste the material. Out of these considerations arise the questions, What is a mild case of diphtheria? and What are the minimum and maximum doses?

In answering the first question in any given case the age of the patient is of the highest importance. Before the introduction of the antitoxin treatment half the patients under five years of age admitted to the hospitals of the Metropolitan Asylums Board died, and many of the remaining half narrowly escaped death. Diphtheria in children under five is an exceedingly serious disease; it is very serious up to ten (twenty-eight-per-cent mortality), and is still serious from ten to fifteen (ten-per-cent mortality). After that age it becomes less serious (four- or five-per-cent mortality) up to the age of forty, when it again rises. Therefore every child under fifteen should certainly be treated with antitoxin. If the case is a mild one—that is to say, if the exudation or membrane is limited to a part of one or both tonsils, and there is no nasal discharge or evidence of laryngeal implication; and further, if there is little or no glandular enlargement, no albuminuria, and no obvious constitutional disturbance—then 2000 units should be injected. In such a case there is usually no necessity to repeat the dose; but if, as sometimes happens, the faucial condition gets worse, or constitutional symptoms appear, the dose should be repeated within twenty-four hours.

If the case is not a mild one—that is, if either of the tonsils is entirely covered with thick membrane, or the palate, the nasal passages, or larynx is attacked, or if there is enlargement of glands, fetor, increased frequency of pulse, albuminuria, pyrexia, and restlessness—then the dose should be from 4000 to 10,000 units, according to the extent of the mucous membrane implicated or the acuteness of the constitutional symptoms. In any case a second injection should be made within twenty-four hours, half the initial dose being given if improvement is observed, the same as the initial dose if there be none. The writer believes that if any good is going to be done by antitoxin in a bad case of diphtheria, it will be accomplished by about 16,000 (certainly by 20,000) units given within twenty-four hours.

A severe case of diphtheria is nearly always one which has come under treatment late. Now and then one meets with cases in which the extension of membrane and absorption of toxins are so rapid that within twenty-four hours from the onset the patients show toxic symptoms. Such cases must be treated with 8000 to 10,000 units at once. But usually for the first day the symptoms are slight, and if antitoxin be given at once, they will not become severe. Therefore, it is of the utmost importance to inject antitoxin early, and not wait to see whether the case will assume a severe form.

Another argument for treating every case, however mild, in children with antitoxin is that one never knows whether the disease will spread to the larynx or not. This serious development can certainly be avoided by a timely use of serum.

In patients over fifteen very mild cases may be left without antitoxin—cases, that is to say, in which the exudation is small in amount and strictly limited to the tonsils. Should there be more extensive exudation, or constitutional symptoms, or albuminuria (which may be taken as evidence of toxemia),

the case should be treated with antitoxin, the dosage being the same as that recommended above for children; but the cases not treated should be carefully watched, and at any sign of progress on the part of the disease antitoxin should be administered. The larynx is not implicated so often as in children; the first, and often the only, sign in adults is aphonia.

When antitoxin is employed as a prophylactic, a dose of 600 units is sufficient.

Antitoxin serum, if kept in a cool, dark place, will preserve its therapeutic properties for several months, but no attempt should be made to keep for future use the contents of a bottle that has been opened.

THE TREATMENT OF THE PAROXYSMAL STAGE OF WHOOPING-COUGH.

The *British Medical Journal* of November 9, 1900, has in it an article by GODSON in which he reminds us that the following drugs have been mentioned as of service in the treatment of this disease: Alum, antipyrin, acetanilid, belladonna, bromides, cannabis indica, carbolic acid, chloral hydrate, creosote, lobelia, opium and its derivatives, phenacetine, quinine, etc. This list, on account of its prodigality, is confusing to the novice, and appears to show that there is a considerable difference of opinion with regard to the correct treatment of pertussis. In the early months of the year Dr. Godson sent round a circular to a number of general practitioners in the hope of obtaining an answer to the following questions: Are all these drugs in actual use? Which drugs are considered to yield the best results? Which drugs are most frequently employed?

An examination of the answers to this circular furnished the following conclusions: The list of drugs is considerably diminished. Those commonly employed and chiefly depended upon are antipyrin, belladonna, bromides, carbolic acid, creosote, and opium; while as accessory and occasionally useful drugs are mentioned chloral hydrate, quinine, butyl-chloral-hydrate, etc. The antispasmodics are always combined with expectorants, of which the alkalies are the greatest favorites. Inhalants appear to be in general use, the ones referred to being carbolic acid, creosote, bromoform, and chloroform. None of the other drugs in the first list have been employed by his correspondents. The relative popularity of the various drugs is as follows: Belladonna, 32 per cent; carbolic acid, 28 per cent; bromides, 20 per cent; creosote, 12 per cent; antipyrin, 6 per cent; opium, as paregoric, 2 per cent. These results, while not pretending to be authoritative or exhaustive, are interesting as coming from a good representative group of general practitioners.

None of the answers he received were enthusiastic except from those who had used creosote. This remedy was strongly praised. It appears to have little effect when given internally, and must be used as a vapor. The results obtained are far more satisfactory when the inhalation is continuous than when it is intermittent. The simple and best method is to sprinkle the drug on a cloth, and hang the cloth in the nursery or sick-room to dry. In this way a highly impregnated air can be constantly supplied to the patient. Many other methods can be employed, but none are so satisfactory as this. The inhalation appears to be free from danger except where the chest is full of moist sounds, in which case its effects should be carefully watched.

The method of treatment Dr. Godson has found most satisfactory is the following: Commence at once with the continuous inhalation of creosote. Clear the lungs of bronchitis as much as possible before using any special internal antispasmodic remedies. In bronchopneumonia, however, belladonna appears at once to do good. In all cases, if the chest is fairly clear, and the circulation good, antipyrin may be given in suitable doses. Expectorants should be combined with the antipyrin. Good air, warm clothing, light and wholesome food, are necessary in all cases. He has followed these rules for the last six years, and is quite satisfied with the results. The average length of time required for cure in a variety of cases last year was 19.8 days, but these figures in no way represent the benefit derived from the creosote treatment. In every case the diminution in the number of paroxysms was so immediate that the patient willingly put up with the inconvenience of the smell of the drug for the sake of its manifest advantage. This in itself is a sufficient testimonial to the remedy to warrant its more extensive employment.

SUPRARENAL GLAND EXTRACT AS A HEMOSTATIC.

GRUNBAUM writes as follows in the *British Medical Journal* of November 3, 1900. He tells us that somewhat more than eighteen

months ago he suggested the administration of suprarenal gland in cases of hemorrhage from the walls of the alimentary canal, a condition which makes itself evident as hematemesis or melena.

The rationale of the treatment was based on Schäfer's observation that suprarenal extract caused contraction of the plain muscle fibers of blood-vessels when applied locally and acted as an efficient hemostatic in epistaxis, together with the result of a series of experiments which led him to the conclusion that administration of the gland by the mouth did not cause a rise of blood-pressure in normal individuals.

At that time he did not enter into detail as to the method of administration, nor the pathological conditions in which the exhibition of the preparation would probably be followed by satisfactory results.

Since many of the liquid extracts are robbed of their efficiency by time, one or two crushed five-grain tablets given by the mouth is the most satisfactory method of administration in hematemesis.

The advantage of suprarenal extract over the more popular hemostatics lies in the fact that it acts in very dilute solution, and does not tend to combine with albumen and become inert, in a similar way to ferric chloride; it must, however, be borne in mind that it does not cause coagulation of blood, and therefore does not seal the bleeding points with clot.

In hematemesis the most rational method of using iron is by administering one large dose, since some of it will combine with the blood already shed into the stomach, and an excess is required to cause coagulation of the blood oozing from the vessels and thus seal them. The correct administration of suprarenal extract in the same pathological condition offers considerable contrast; small doses may be given, since the drug acts in very dilute solution, but the dose must be repeated at short intervals, for only while the vessel wall is under the action of the extract will it remain contracted; coagulation of blood is not accelerated.

Practice substantiates theory, for in cases where suprarenal extract has been administered temporary cessation of bleeding has occurred, but often recurrence of hemorrhage has ensued after several hours, when no repetition of the dose has been ordered.

Hemorrhage from a small artery is more likely to be efficiently controlled than capillary oozing from a hyperemic mucous membrane. It is no easy matter to foretell whether its exhibition in typhoid ulceration and hemorrhage would be followed by satisfactory results, since it is questionable whether the extract would reach the site of the ulcer in a potent form. The writer has not had opportunity of making practical observations.

Two or three tablets crushed and mixed with a few ounces of water and injected into the rectum is the most satisfactory method of applying the remedy in hemorrhage from that viscus. A sterile extract is not irritating, and may be used to wash out the bladder when bleeding occurs from that organ; it may also with advantage be added to the water used as a uterine douche in cases of postpartum hemorrhage.

If we accept the theory that congenital hypoplasia of the vessel walls is associated with hemophilia, we should not expect that in this pathological condition suprarenal extract would be followed by satisfactory results. In no single instance in which this condition has been treated with this drug has Grünbaum been able to satisfy himself that benefit has accrued.

THE QUANTITY OF DIPHTHERIA ANTITOXIN REQUIRED IN THE TREATMENT OF DIPHTHERIA.

PARK writes in the *Archives of Pediatrics* for November, 1900, upon this theme, and in summing up the results of the study of ninety-three cases, he says that the local condition in the moderately and markedly severe cases did not clear up as rapidly with 1000 as with 2000 units, and in two or three cases he believes that death would have possibly been avoided by larger doses. He believes also that in several of the 2000-units cases better results would have been obtained by larger doses of from 3000 to 5000.

So far as the frequency of the complications and their severity are concerned, they did not differ appreciably in the two series. Very large and repeated doses of antitoxin do, in his opinion, increase somewhat the liability to the serum complications, but from his own observation, and from the observations of Dr. McCollom, he thinks it correct to say that the increase in the serum effects from very large doses is much less than most believe.

At the hospital they have tried two other experiments which are worth recording here. In the first they gave every alternate case from 2000 to 6000 units, according to the

severity of the disease. The other half received just double that amount. Park does not think any of them saw any difference in the outcome of the two series of cases. In the second experiment, in order to test a new remedy, no antitoxin was given to one-half of the cases for six weeks. The results were so bad in a considerable number of those not receiving antitoxin that they were all put back on the antitoxin treatment. From these experiments and from his observation of other cases in both hospital and private practice, he has been led to adopt the following dosage: Very mild cases, 1000 to 1500 units for the first dose; moderately severe cases, 2000 to 3000 units; very severe cases, 4000 to 5000 units; laryngeal cases, according to their severity, 2000 to 5000 units. For children under one year he would give about one-third less than for older children and adults. He believes the condition of the throat as to swelling, extent and nature of the membrane, etc., to be a better guide to antitoxin dosage than the general condition of the patient. The duration of the disease influences the curative power of the antitoxin rather than the dosage.

If at the end of twelve hours after the injection the inflammation is advancing, or if at the end of eighteen hours the inflammation has not clearly begun to subside, as shown by lessened congestion and swelling, Park believes a second dose of antitoxin should be injected. In a very few cases a third dose is required at the end of twenty-four or thirty-six hours. For the bronchopneumonia and sepsis complicating some of the worst cases, antitoxin is generally of no avail. Although he cannot agree with Dr. McCollom in regard to the necessity of from 40,000 to 60,000 units in the very bad cases, nevertheless his results certainly encourage us to give all the antitoxin that we think indicated. It is better to give too much rather than too little. He thinks he is correct in saying that it is the opinion of the visiting physicians at the hospital that moderate doses accomplish as good results as very large ones.

THE TREATMENT OF DIPHTHERIA AT THE BOSTON CITY HOSPITAL.

JOSLIN contributes the following summary of facts to the *Boston Medical and Surgical Journal* of November 8, 1900. He states that during the last hospital year, ending February 1, 1900, there were treated at the Boston City Hospital fifty-five per cent of all the recognized cases of diphtheria in Boston. The number of cases was 1813, and of this number there were 180 deaths, or a mortality of ten per cent. Eliminating the deaths which occurred within twenty-four hours after entrance, the mortality falls to about seven per cent. Such a brilliant record leads to the question, By what means were such successful results obtained? And that he might answer this question, he has been so fortunate as to secure from Dr. McCollom, of the South Department, an outline of his views on the treatment of diphtheria at the present time; and as his experience this last year has been greater than that of all the other members of the medical profession in the city combined, the importance of his conclusions becomes apparent.

In the first place, Dr. McCollom, and his assistant, Dr. Burroughs, are thorough believers in antitoxin. And this belief is based not only on the steady decline of the diphtheria mortality at the hospital, but on their experience with the disease among the doctors, nurses, and employees of the institution. Of 100 consecutive cases of diphtheria (clinical as well as bacteriological) occurring at the hospital among the doctors, nurses, and employees, there has not been a single death! With this the case, Dr. McCollom's statement that the doctors prefer diphtheria to scarlet fever excites no wonder, and Dr. Burroughs's story of the house officer who was disgusted and disappointed because Klebs-Loeffler bacilli were not found in his sore throat is readily understood. For as the young doctor said, "If they were there you could do something for me; as it is there is nothing left but to bear it."

In the second place, Dr. McCollom feels sure that the importance of giving large doses of antitoxin is not fully appreciated. Two years ago 800 consecutive cases of diphtheria at the hospital were analyzed, and the mortality was fifteen per cent. A short time ago another series of 800 consecutive cases treated with enormous doses was studied, and the death-rate proved to be ten per cent. As Dr. McCollom pertinently remarks, no hard and fast rule can be laid down with the dosage of antitoxin any more than with potassium iodide. You give the latter until you get the effect, and so you must do with antitoxin. It must be administered until the characteristic result upon the diphtheritic membrane has been obtained.

But it is particularly in those severe cases which come to intubation or tracheotomy that the advantages of large doses are seen. In the early days the child would do perfectly well for twenty-four or forty-eight hours, when a discharge of thick, tenacious mucus would appear, and the child would then gradually die from the extension of the process. This tough, tenacious mucus, by the way, is positively indicative that the membrane is extending. In these cases the mortality before antitoxin was given was eighty-seven per cent; during the first year of antitoxin it fell to forty-six per cent; but this last year, during which the large doses have been given, it has fallen to thirty-two per cent.

No case of diphtheria should be considered hopeless, and it has been interesting to the writer to note how much more strongly both Dr. McCollom and Dr. Burroughs insist on this point now than they did at his earlier visit six months ago. Cases come to the hospital practically dead—the child has ceased to breathe, and there is no heart-beat, yet some finally recover.

And it seems probable that the reason that the Boston City Hospital's statistics are better than those of another institution just published lies in the fact that these severe cases are saved by the large doses. It is idle to conclude that there is any great difference in the type of cases entering the two institutions, for this is not probable. Both the hospitals alike undoubtedly get the worst cases in the community, but here the mortality is ten per cent, there twenty-four per cent.

Various factors have tended to make the customary dose of antitoxin small. There is the question of expense, and this is certainly a cold, hard fact. Then there is the bacteriologist, who with comparatively few units neutralizes the power of half a cubic centimeter of toxin. "But who knows how much toxin is being formed under a diphtheritic patch on a tonsil? Who knows how much toxin there is along the course of this cast, just coughed up by a patient, which extended throughout the trachea, the large bronchi, and many of the smaller?" A third protest against large doses of antitoxin comes from the doctor in general private practice. But his conclusions have nothing to do with hospital practice. In the former instance the cases are often mild, are seen early, and need comparatively little antitoxin anyway; in the hospital conditions are different. Finally, danger of an overdose sometimes deters the doctor from injecting large amounts. It should not. "You can't supersaturate with antitoxin! If there is one thing which the history of the Boston City Hospital has shown, it is this—that no harm results from antitoxin. Urticaria may develop, it is true, but it is no worse after large than small doses."

In a severe case Dr. McCollom gives 4000 units at once. This is repeated every four to six hours until the patient begins to improve. Children under five receive 3000 units, but above that age 4000. To one man critically ill 8000 units was given at one time. The man recovered.

The mortality from diphtheria at the Boston City Hospital before 1895 varied for a series of years from fifty to forty-six per cent. At the South Department two years ago it had fallen to twelve per cent; last year it was ten per cent. As a result of his experience with more than 6000 cases of diphtheria, Dr. McCollom recommends the use of large doses of antitoxin.

A CASE OF CONTRACTING SCAR OF THE PALM OF THE HAND REMEDIED BY A FLAP FROM THE ABDOMEN.

BRIGGS (*Boston Medical and Surgical Journal*, October, 1900) was consulted by a patient who, because of a cicatrix in the palm of her hand as a result of a severe burn, was incapacitated for work. The only motion possessed by the hand was between the flexed thumb and the second finger, and this was extremely limited. Moreover, the cicatricial tissue was delicate and caused pain and discomfort, since it readily fissured and became abraded. The entire palmar surface of the hand was composed of a cicatrix. This was wholly dissected off, cutting away the superficial fascia and freeing the ring and little fingers. All the adhesions were removed, allowing free motion of the tendons below, which were nowhere adherent. The outline of this denudation, which was covered by a firm compress and bandage, was then marked over the left side of the abdomen just below the sternum with its base on the median line. A flap somewhat larger than this outline was dissected out with the exception of a broad pedicle running vertically along the median line. This flap was turned over, thus having its cut surface upward. Bleeding was checked, the compress was removed from the denuded palm, the two raw surfaces were laid together

and secured by suture. A corrosive dressing was placed between the forearm and the open wound left by the removal of the flap, a second dressing was placed under the fingers, and the whole combined seat of operation was covered with a large sterilized dressing. The hand was held in position by long strips of adhesive plaster carried around the elbow and the body, the whole being encased in a Velpeau bandage.

Fourteen days later the pedicle was cut free from the abdomen, the edge of the flap being then stitched to the corresponding edge of the palmar wound. The new palm united rapidly and firmly, but was at first thick and unsightly, preventing complete closure of the hand. This thickness gradually disappeared. Sensation was present from the first and gradually returned until finally it became fully normal. The function of the hand was completely restored.

ANTITOXIN TREATMENT OF TETANUS.

As a result of a careful study of this subject, MOSCHCOWITZ (*Annals of Surgery*, October, 1900) appends the following *résumé* to his paper:

All forms of tetanus are caused by the bacillus of Nicolaier; hence the diagnosis rheumatic or idiopathic should have no room in our nosology.

The tetanus toxins appear to have a distinct affinity for the anterior horns of the spinal cord, which may be distinctly recognized by Nissl's method of staining. The cerebrospinal fluid of tetanus patients is more toxic than the blood.

The antitoxin therapy appears to have a distinct beneficial influence upon the course of tetanus.

With the antitoxin treatment the mortality percentage has been reduced from about ninety to forty per cent.

Although the use of the serum is a most important factor in the treatment of tetanus, the other recognized therapeutic measures should not be neglected.

SURGICAL TREATMENT OF PRIMARY RENAL TUBERCULOSIS.

RAMSAY (*Annals of Surgery*, October, 1900) states that the treatment of primary renal tuberculosis has now become almost entirely surgical, and that this form of treatment can, under favoring circumstances, accomplish a final and lasting cure. He regards the tubercular inflammation as semimalignant in character; the same rules should be laid down as for the treatment of malignant growths—early and complete removal of the infected tissue.

Nephrotomy is regarded as a palliative measure applicable to the relief of acute symptoms.

Partial nephrectomy is considered inadequate, total excision being the operation of choice. Primary nephrectomy is indicated in all cases in which one kidney alone is diseased; though this must be qualified by stating that there must be no discoverable tubercular foci in any other important organ save the bladder or ureter of the same side. As another possible exception to this rule may be classed the cases in which a small tubercular area in one lung has been demonstrated, the tissue being otherwise in good condition.

The extraperitoneal route is the safest one for operation, a rib being resected in case more room is needed, or auxiliary incisions being made. Ramsay states that the persistent fistula which often follows in so many cases of nephrectomy for tuberculosis may be due to the ureter left *in situ*. He advises the removal of this canal.

In the statistical study Ramsay notes that nephrotomy was done in fifty-five cases, complete recovery being claimed in but four of these. Fifteen died within the first month after operation; twenty-two died at a later period, varying between two and a half months and three years.

Of 191 cases of primary nephrectomies, 106 are noted as being followed by a complete cure lasting from one month to twelve years; thirty-one were improved by the operation; thirty-seven died within one month after the operation; and seventeen died at a period later than one month. The duration of the cure varied from a period of two months after operation to a period of two years; of these 106 reported cures, however, only twenty-five have remained cured over two years. Among the thirty-seven patients dying within one month, fourteen did not survive longer than forty-eight hours; the remaining twenty-three living from forty-eight hours to twenty-three days. The comparatively small number of deaths at a later period than one month seems to show that the prognosis for final cure is extremely good after the immediate results of the operation are over.

Of forty-nine cases of primary nephrotomy followed at a later period by nephrectomy,

twenty-three are classed as cures; eighteen died within one month or at a later period; seven were improved; one was not improved. The duration of cure varied from one month to seven years. Of the eighteen deaths, eleven took place in one month.

Ramsay as a result of his study of this subject formulates the following conclusions:

That renal tuberculosis may be classed as a semimalignant form of inflammation, and that for this reason treatment of some sort is always indicated.

That this surgical treatment will have a palliative or a curative end in view, depending on the condition of the patient and the duration and extent of the disease.

That nephrotomy in renal tuberculosis is to be classed as a palliative; and that as a palliative operation for the immediate relief of dangerous symptoms, and as not precluding a later nephrectomy, nephrotomy with drainage of the abscess cavity is most valuable.

That resection of the diseased part of the kidney is contraindicated in renal tuberculosis because of the danger of leaving a tubercular focus in the portion left in the body.

That nephrectomy or nephroureterectomy is indicated in every suitable case, and in suitable cases should be followed by a lasting cure in 55.5 per cent of the cases.

That the indications against nephrectomy are tubercular or other disease of the second kidney, or tubercular foci in other organs.

That tuberculosis of the bladder is not to be considered a contraindication to nephrectomy, as it will probably heal later.

That a small tubercular focus in the lung, if the patient is otherwise in good condition, may sometimes not be considered a contraindication.

That in doubtful cases, when it is questionable whether the patient can stand an immediate nephrectomy, it is better to do a nephrotomy, following it later by a nephrectomy.

That the clamp method of controlling the pedicle is contraindicated from the danger of hemorrhage after the removal of the clamp.

That it is safest to remove the ureter with the kidney, as a persistent fistula may give trouble if it be allowed to remain in the body.

That a certain proportion of these fistulæ will finally disappear, either after the removal of a deep suture, or because of the slow disappearance of the tubercular disease in the ureter, which in these cases gradually changes into a fibrous cord.

That we may expect a steadily increasing number of final cures as our means of diagnosis improve, and as our surgical technique is carried out more carefully and scientifically.

A STUDY OF ONE THOUSAND OPERATIONS FOR ACUTE INTESTINAL OBSTRUCTION AND GANGRENOUS HERNIA.

GIBSON (*Annals of Surgery*, No. 4, 1900) has collected his material for this paper from publications of cases operated on between 1888 and 1898. His cases were all acute and include 354 cases of hernia, 187 cases of intussusception, 186 cases of bands, 121 cases of volvulus, 42 cases of Meckel's diverticulum, 40 cases of gall-stones, 34 cases of openings, 16 cases of foreign bodies, and 20 miscellaneous cases. The mortality is greatest from obstruction due to strangulation, through openings such as the foramen Winslow; it reached sixty-seven per cent.

Gibson appends the following summary to his paper:

The most frequent causes of intestinal obstruction are intussusception and bands. The mortality is forty-seven per cent. The mortality of resection is seventy-four per cent.

The mortality of artificial anus is seventy-seven per cent. The mortality depends upon the duration of the obstruction and on its nature, being least in foreign bodies, inflicting little or no damage to the intestine (twenty-five per cent), and most in such conditions as produce a tight constriction, as "openings" (sixty-seven per cent).

The mortality of hernia is thirty-four per cent. The proportion of female herniæ is fifty-nine per cent. The ratio of mortality of inguinal herniæ to femoral is as three to four. The mortality of resection and primary enterorrhaphy is twenty-six per cent. The mortality of artificial anus is fifty-three per cent.

In resection and primary reunion by suture, the mortality is thirty-eight per cent. In resection and primary reunion by apparatus (including Murphy button), the mortality is thirty-six per cent. In resection and primary reunion by Murphy button, the mortality is thirty per cent. A large proportion of deaths are due to failure of technique, such as removal of too little intestine or imperfect suture. At least thirteen per cent of resec-

tions are attended with defects of technique, either resulting fatally or in the formation of intestinal fistulæ.

The mortality is lowest in internal obstruction, such as a foreign body, and highest in obstruction by an unyielding constriction, such as a band, and lower in hernia than in internal obstruction, chiefly because the surface exposed to absorption is less. The chief sources of mortality are: The desperate character of the majority of the cases; failure to establish the opening above the site of constriction; failure to provide for the relief of absorption from gangrenous changes in the intestine, death often necessarily occurring on this account, although the obstruction is perfectly overcome.

Prominent among the drawbacks of artificial anus is the fact that it must subsequently be repaired; for in most cases there is no tendency to spontaneous closure, while minor plastic operations are rarely efficient. Formal liberation of the intestine and secondary resection is usually an exceedingly difficult operation, as is evident by its mortality: after intestinal operation, forty-three per cent; after gangrenous hernia, twenty-seven per cent; average, thirty per cent.

The causes of death after operation fall into three main groups:

1. From causes inherent to the condition and little amenable to treatment—such as shock and preexisting peritonitis—these causes accounting for the majority of fatalities. Improvement can only be hoped for by earlier recognition of the condition, thereby securing the performance of operative relief before the severer changes take place.

2. From causes depending chiefly on the nature and the details of the operation, such as failure to relieve obstruction and defects in technique, or failure to take account of the conditions to be dealt with.

3. On intercurrent conditions.

The most essential feature in the prognosis is the duration of the obstruction. In early interference there is generally only one condition to be fulfilled—removal of the obstruction. With long continuance of this condition, secondary changes of the greatest gravity supervene, requiring for their relief measures of great extent and difficulty.

The nature of the obstruction is the next important factor, acting in the same way as in the first instance as to changes in the intestinal walls, the prognosis being best in internal obstruction, and worst in tight external constrictions.

ANEURISM OF THE AORTA TREATED BY THE INSERTION OF A PERMANENT WIRE AND GALVANISM.

HUNNER (*Bulletin of the Johns Hopkins Hospital*, vol. xi, No. 116, 1900) reports five cases of aortic aneurism treated in this way. He states that in the preparation for an operation the surgeon should experiment beforehand with his needles, wire, and electrical apparatus, to find which he can manage with the greatest facility and effectiveness. Within limits the needle should be large enough for the easy passage of the wire. As to insulation, the needle should be covered from the shoulder to within one centimeter of the point with some non-conducting material, so that the electrical current will not be dissipated when the needle passes through the sac wall. Hunner coats his needles with a black varnish or lacquer—best French lacquer, made by Behlen & Bro., New York. These needles are best sterilized in a dry-air chamber. One-half dozen of various sizes and lengths are lacquered, placed in a test-tube, corked with cotton, and kept in a hot-air chamber for an hour at a temperature of 160° C.

In selecting wire one considers the amount to be used, its size, and its composition. The recognition of a few general principles will aid in its selection. The disposition of the wire in the lumen of the sac is an important factor in the amount and effectiveness of the fibrin whipped out. A small quantity of fine wire possessing a good spring should be selected. Cure of the aneurism demands as complete contraction as possible of the sac wall upon the clot formed at or soon after the operation. The wire should be of such amount and material as not to interfere seriously with this contraction. The corrosion of the wire by the electric current makes a rough surface very conducive to the rapid whipping out of fibrin. Within limits the wire most easily corroded is to be preferred.

After considerable experimenting in conjunction with Mr. Frank Persohn, who makes the wire used in the hospital surgical work, Hunner states that they found a silver alloy, highly drawn, to be quite ideal. It is more pliant than steel, thus minimizing the danger of puncture should the end come in contact with the thin aneurismal wall. It has more body than the pure silver of equal drawing, and is therefore more easily passed into the needle without kinking. It corrodes much more than steel, thus forming a rougher sur-

face for the whipping out of fibrin. The author believes, however, that the fibrin formation is far more a chemical than a mechanical process; and silver being one of the least resistant of all metals to the electric current, it transmits more of a given current for action on the blood.

With regard to electrical apparatus Hunner states that he has found the galvanic battery of the Baltimore Chloride of Silver Dry Cell Battery Company a compact, simple, and effective instrument. It rests on a small table near the anesthetist, and by means of its insulated conducting cords is connected, the positive pole to a long end of the wire from the aneurismal sac, the negative pole to a metal plate at the back. This plate should be well covered with several layers of towel kept moist throughout the operation.

Never should the sac receive both poles, nor should the current be so passed that the negative electrode is in the sac. Duncan, and later Stevenson, have shown that about the negative pole there accumulates a yellow, friable, alkaline mass composed to a great extent of gas bubbles which very quickly break down; while about the positive pole the clot is smaller, firmer, and darker in color, and has an acid reaction.

In thoracic aneurism one of the greatest claims of this method over that of distal ligation is the fact that the patient does not require an anesthetic. This is particularly advantageous in cases of dyspnea and bronchitis from pressure on the trachea. Locally cocaine or ethyl chloride may be used. Usually the needle is inserted where the sac wall seems nearest the exterior surface. If there be more than one point of bulging, and it be suspected that a multilocular or very large sac is being dealt with, it would be advisable, as suggested by Stewart, to pass wires at more than one point and attach the positive pole to each. The needle should be inserted as nearly as possible with the direction of the entering current and away from the mouth of the sac. If a kink occur after some wire is in, one inserts another needle, and after passing the required amount of wire, both wires are attached to the positive pole.

For the abdominal cases make the usual preparations for celiotomy. Be particularly careful to clear the intestines in order to have the field of operation as free as possible. The method of exposure of the sac will have to be determined for the different organs, the adhesions present, the directions in each case according to the position of the sac, its relations to which the needle should be passed, and other contingencies that arise after opening the peritoneal cavity.

One of the greatest dangers in this procedure, especially in the large multilocular aneurisms, is the development and rupture of a secondary sac due to the rapid filling of the main sac by coagulum and the shunting of the blood-stream against a portion not receiving a special strain before.

The chances of a loop of wire entering the aorta seem less than one would *a priori* suppose. Moore expresses surprise that in his case, with large openings in the second and third interspaces connecting the extra- and intrathoracic sacs, no wire entered the inner case. The accident has occurred in three cases upon which autopsy has been held.

One would suppose that a loop of wire in the aorta would whip out fibrin and present a menace in the form of emboli, but nothing is said of fibrin in any of these cases, while in the large fusiform aneurism of Kerr, where electricity was used, there was found a firm clot around the wire and on the walls. The wire had taken a position in the anterior portion of the sac, and may have been out of the direct aortic current. In Stewart's third case there was no clot about the wire, which had been in the fusiform aortic dilatation five days. While clinical experience shows that wire without galvanism will collect fibrin in the lessened current of a sac, it is probable that it will not do so in the active aortic current.

Another danger is that of emboli breaking from the sac wall during or after the insertion of the wire.

Litten by his clinical and experimental research demonstrates that sudden closure of the superior mesenteric artery can have but one result, namely, hemorrhagic infarct from the lower end of the duodenum to the middle of the transverse colon.

Loreta suggests the danger, in abdomina aneurism, of the sac giving way when the abdomen is opened, and the support of the abdominal walls thus removed.

Failure might result, particularly in aneurism of the thorax, because of the presence of a double sac, both intrathoracic, or one intrathoracic and one outside the ribs; or one might successfully treat a saccular dilatation of the aorta, and still be confronted by a failure because of the presence of a fusiform aneurism.

With Moore's method of wire alone four-

teen cases have been treated, eight thoracic and six abdominal. Two of these cases of abdominal aneurism resulted in cure. In all but four of these cases it is definitely stated that the patients were in a desperate condition, and it is a matter of speculation how much death, occurring in from one day to one month after operation, was hastened. Autopsy was held in nine cases, and in all the effect of the wire in whipping out fibrin was marked.

With the combined method (Moore-Corradi) there have been twenty-three cases, seventeen thoracic and six abdominal. Four of these, or seventeen per cent, three thoracic and one abdominal, were cured.

Nine cases, or thirty-nine per cent, attest the value of the operation by amelioration of symptoms and prolongation of life.

Clinical and post-mortem evidence points to the efficacy of this method. Its great drawback is the difficulty of accurate diagnosis. If one considers that none of these patients were picked as being favorable for operation, but, on the contrary, that they were almost without exception considered hopeless cases, we are forced to give the method careful consideration. The fact that the method is still in its infancy, and in many instances most crudely applied, makes the record still more impressive.

THREE CASES OF GASTROTOMY FOR HEMATEMESIS.

MOULLIN (*The Lancet*, No. 4025, 1900) operated on a woman forty-two years old who had suffered from a recurrent hematemesis for six years, associated with symptoms of gastric ulcer. Medical treatment failed to relieve her symptoms materially, therefore she was subjected to median section. On opening the stomach two small superficial ulcers were discovered on the posterior wall nearer the cardiac end than the pylorus. They bled freely when touched. Silk ligatures were passed in two directions underneath these ulcers by means of a curved needle and tied so as to strangulate the base. Recovery was uneventful, except for persistence in vomiting, which continued for about ten days. The patient was discharged cured.

The second patient had been vomiting blood profusely for four days, and also the motions were black. There was no history pointing to gastric ulcer. On opening the stomach one very small bleeding point was found on the posterior point near the pylorus. It could scarcely be called an ulcer, but as the edges were ecchymosed and blood could be seen oozing from it, it was sutured in the way already described. This patient was discharged cured in four weeks.

The third patient, a man forty-two years old, suffered from hematemesis and melena. An exploratory laparotomy was performed with the hope of determining the presence or absence of malignant growth. Nothing was found, and the abdomen was closed. On recovering from the anesthetic the patient began to vomit blood. This continued during the night. On the following day the abdomen was reopened, and the interior of the stomach carefully explored. For a long time the source of bleeding could not be found; but at last on introducing a vaginal speculum a large irregular surface upward of one and a half inches in length was found at the cardiac end. From this blood was pouring freely. The edges were well defined but not steep. An attempt to ligature the tissues of the base by means of silk sutures passed from the mucous surface simply made the bleeding worse. The ulcerated portion of the stomach wall was, therefore, invaginated through the operation wound made in the anterior surface of the organ, and a ligature was tied as tightly as possible around the base of this invaginated cone. Three Lembert sutures were inserted across the puckered spot on the serous surface to safeguard it when the strangulated portion came away. This patient also recovered.

It must be remembered in performing these operations that it may be impossible to find the ulcer; indeed, there are records of fatal hematemesis in which no lesion could be found post mortem.

THE PROPHYLAXIS OF CANCER.

BEHLA (*Deutsche Medizinal-Zeitung*, No. 45, 1900) notes that the outlook has not changed since Bardleben said twenty-five years ago that prophylaxis against cancer could not be found. However, Behla thinks the following points worthy of attention: From various researches about the supposed cause of cancer, suspicion has been thrown upon the water in stagnant pools, ponds, and ditches which are surrounded by wood or bushes on their banks; and this may with great probability be regarded as the bearer of the cancer germ. In such cases where endemic cancer is present it is desirable that such water should not

be used for drinking, unless it be boiled, nor should it be used unless boiled for household purposes—washing tables, eating- and drinking-vessels—or to water the garden and field beds. Cancer may also be derived from vegetables, so that salads and raw vegetables must not be washed with such water. To the use of salad, raw vegetables, fruit, berries, a greater hygienic attention must be paid. The baskets, sacks, etc., in which fruit is stored are often kept in damp, unclean rooms, cellars, outhouses, etc., where mold is prevalent. There is still a blot on the hygiene of foods, for whilst with water, meat, and milk the best sanitary measures prevail, the gate is wide open to infection from raw vegetables and fruit.

Behla thinks heredity undoubtedly plays an important rôle in the etiology of carcinoma. He also blames marriage between near relations. Infection may be conveyed by the secretions, discharges, blood, etc., from cancer by means of fingers, instruments, pipes, drinking-vessels, etc.

The author bases his conviction on frequent outbreaks of cancer which cannot be accidental; and he considers that the cancer germ resides in the house or in its near neighborhood, and that it will be eventually shown to be a plant fungus, and that then cancer will become a preventable disease.

LAPAROTOMY IN CONTUSIONS OF THE LIVER.

GOSSET (*Gazette des Hôpitaux*, Aug. 2, 1900; quoted in the *Quarterly Medical Journal*, November, 1900) reports two cases of wound of the liver caused by a kick from a horse. In the one case, after laparotomy, there was found a wound of the inferior surface of the liver. A gauze drainage was placed in this wound. The patient recovered. The signs in this case were the trace of a horseshoe on the abdominal wall, contraction of the whole abdominal wall, especially on the right side, acute pain in the right hypochondrium, and dulness in the right iliac fossa. The diagnosis was intraperitoneal hemorrhage.

In the second case there was very marked syncope, pain in the whole upper part of the abdomen, especially above the umbilicus. On percussion, dulness in the right iliac fossa and resonance over the rest of the abdomen. Laparotomy was done, and a large quantity of blood was evacuated. Several rents in the liver were found on the inferior surface of the organ, but they did not appear sufficient to account for the hemorrhage. The anterior surface appeared normal. Some gelatin solution, prepared beforehand, was placed on the tears, and pieces of gauze passed down and brought out of the wound. The patient died fourteen hours after the operation, and there was blood escaping from the wound. The post-mortem showed an abundant bloody effusion. The abdominal organs were healthy except the liver. On the inferior surface there was only what had been seen at the operation; but on the superior surface there were much more important lesions which had been missed at the operation. The anterior third was intact, but the posterior two-thirds was traversed by nine anteroposterior fissures varying in length from 1 to 3¼ inches, some of which were as much as ¾ of an inch in depth. The author draws attention to the value of contraction of the abdominal wall in contusions of the abdomen. He says Hartmann notes the value of this sign, and states that whenever this has been present he has never regretted performing laparotomy, and that he has always found visceral lesions present. Abstention in its absence has also been justified.

In order to make no mistakes one must proceed methodically and very gently; the patient must be quieted, and made to breathe easily with the mouth open; then one must place the flat hand on the abdominal surface and press it down slowly and progressively. When there is no lesion deep pressure is possible. In the arrest of arterial bleeding forceps suffice, but a gauze tampon, left in from two to three days, will always be found to arrest oozing.

THE RELIEF OF PROSTATIC ENLARGEMENT.

BISSELL (*Medical Record*, Nov. 10, 1900), after a discussion of the various palliative and radical treatments adopted for the relief of prostatic enlargement, thus describes the perineal operation, which he says is quite simple:

The patient has been prepared by several days of rest in bed, irrigations of the bladder, and 7½ grains of urotropin night and morning. Cystoscopy is used at least once, to give the operator a good idea of the inner surface of the bladder and the amount and shape of the hypertrophy of the middle lobe. The patient is given calomel the night before, with a saline purge in the morning preceding the operation, and the rectum cleared out

with thorough irrigation. The bladder is also irrigated with Thiersch's solution just previous to the beginning, and four to six ounces of this solution left in. A full-sized sound is passed to the bladder and held by an assistant.

Bissell prefers the lateral to the median incision, as it gives more room. It is made slightly crescentic, with the convexity upward, its center being a little less than halfway from the anus to the perineoscrotal junction. The patient is in the lithotomy position. The incision is two and one-half to three inches or more in length. The left forefinger in the rectum locates the prostate and also warns the operator when he is approaching too closely to the rectum. The incision is carried by careful dissection down through the tissues to the membranous urethra, where the sound locates that canal and the apex of the prostate. Stripping the tissues from the apex backward can be very easily and rapidly done, either by means of a blunt dissector or with the right forefinger nail. The left forefinger in the rectum assists in forcing down the prostate and acts as a guide. Without care considerable laceration of the rectum can very easily happen.

At this stage of the operation a vulsella hooked into the apex draws the prostate very satisfactorily into sight. The capsule, stripped pretty clean inferiorly and anteriorly, can then be incised on either side of the urethra and each lateral lobe pulled out as a whole, bringing the middle lobe with them. If the enlargement is a fibrous one, this is surprisingly easy after one has done it a few times; if, however, the hypertrophy is mixed or the glandular element predominates, the enucleation is much more difficult. The mucous membrane of the urethra and bladder is quite likely to be lacerated, unless extreme care is taken.

In some cases these manipulations can be greatly aided by incising the urethra in the posterior membranous portion, withdrawing the sound, carrying the right forefinger through this opening into the bladder, and pressing downward the middle lobe, thus assisting its enucleation. An Edebohl's speculum in the wound allows of better access to the inferior and posterior surface of the capsule. Great care is needed to separate the prostate from the floor of the bladder without injuring the latter. The secret of success is to keep within the capsule. It is better to leave behind small portions of the prostate tissue than to risk lacerating the bladder wall by a too close dissection. If the middle lobe is a pedunculated or teat-like process, this accident is almost impossible to avoid. Even if it occurs it is not necessarily dangerous. It is better to connect this opening, if made, with the urethral wound.

Hemorrhage usually ceases when the prostate is removed; if not, hot irrigation and a few moments' pressure with hot gauze or sponges will control it. A large, firm drainage-tube is fastened in the wound, so that it opens just within the bladder, and the lower end of it is attached to a continuous drainage apparatus. A strip of acetanilid gauze is placed loosely in the wound to drain the cut surfaces.

At the end of the third or fourth day, and every fourth day thereafter, a full-sized sound is passed down the urethra to the tube, and after its removal to the bladder. This tube is used for irrigations twice daily. As the irrigation of the bladder is a most important detail if chronic cystitis is to be cured, the tube is left longer than would be necessary for simple removal of the prostate gland, the time varying according to the condition of the bladder wall. After it is taken away the viscus is washed out by a catheter passed through the wound.

The average time before the wound is closed is six to ten weeks, but long before that the patients are able voluntarily to expel their urine, the bladder retaining it in the interval without loss.

The results of a perineal prostatectomy become more favorable as improvements take place in the surgical technique, in the methods, and in the time employed in the operation.

Of the dangers of the operation, hemorrhage is one of the least and can be almost always avoided by reducing, as completely as possible, the congestion and edema before operating. Injury to or rupture in the rectum is likely to occur only if the operation is done too hurriedly, or if there be adhesions present, or in very large prostates. The rent should be at once repaired from the perineal side, the sutures being kept from appearing in the rectum.

Sepsis is, of course, an always present danger, but never more so than in any other operation under similar conditions. When free drainage can be obtained, this can be minimized by attention to surgical technique and to the preliminary preparations. The danger of the anesthetic is ever present; the safest is nitrous oxide gas and ether. Hypo-

static pneumonia is a source of danger. Uremia has been responsible for the greatest number of deaths following the operation, but it is not peculiar to this special procedure. Dribbling and incontinence, due to rupture and laceration of the sphincter vesicæ at the time of operation, may occur; but with care in the digital dissection it may be prevented.

Shock depends upon the loss of blood and the length of time of the operation, and it is to be treated by avoidance of these two causes as much as possible, and by intravenous saline injections toward the end of the operation and after it, or earlier if necessary.

SUTURE OF ARTERIES.

DOERFLER (*Beiträge zur Klinische Chirurgie*, Band XXV, Heft 3) reports two successful cases of suture of arteries performed by Barré. In the first instance a continuous silk suture, embracing adventitia and media, was applied laterally to the internal carotid injured in the course of the extirpation of carcinomatous glands. The result was a primary union; but at the post-mortem, three months later, inspection of the vessel was overlooked.

On a second occasion, for a traumatic aneurism of the brachial, four interrupted silk sutures penetrating the intima were applied to the wound of the brachial, embracing half of the anterior circumference of this vessel. The result was primary union; pulsation in the radial and ulnar weaker than the opposite side, and a distinct pulsation being visible below the site of puncture.

These two cases bring the number of successful artery sutures recorded in literature up to nine. No failures at least have been published.

Experimentally the author has determined that an aseptic thread jutting into the lumen does not cause any interference with the patency of the vessel; therefore he sees no danger in having the suture penetrate all the coats of the vessel. Any oozing from the needle punctures not controllable by pressure can be mastered by suture of the vessel sheath, or by covering it with an adjoining slip of muscle or fascia. Wounds of greater extent than half the circumference call for the Murphy invagination method.

Indications for suture are: Accidental wounds, stab, gunshot, or lacerated wounds; injuries inflicted during operation; traumatic aneurisms. Rigid asepsis is a requisite for successful suture; therefore an infected wound offers no field for this procedure. Whereas the skin incision should be free to gain access to the vessel, the sheath should be spared as much as possible, and the vessel itself subjected to as little stretching as possible. To render the vessel free from blood, proximal and distal pressure digitally is to be preferred; this failing, strips of gauze or forceps covered with rubber have to be used. Cambric needles armed with silk proved most useful for suture. Twelve experiments on animals performed with these precautions proved successful.

The Murphy method of invagination is indicated when more than half of the circumference is implicated, or when the laceration is extensive, or when traumatic aneurisms are not amenable to ordinary suture, or when a vessel has to be resected in the course of removal of new growths.

The author is wholly in favor of the invagination method as based on the successful outcome of his animal experiments and the three successful results in man. A particularly grateful field is augured for this method in aneurisms.

THE OPERATIVE TREATMENT OF SPASMODIC TORTICOLLIS.

Little attention having been accorded to the operations for the relief of spasmodic torticollis by German surgeons, KALMUS (*Beiträge zur Klinische Chirurgie*, Bd. XXVI, Heft 1) has seen fit to bring to their notice the work of American and English surgeons. Recently, Woelfler performed accessory neurectomy on a female with temporary improvement. A year later he resorted to resection of the first, second, and third cervical nerves, with ultimate success. Appended to this case is a thoughtful study and lengthy review of ninety-six cases. Herein it is found that the sternomastoid and the trapezius are most frequently affected. In such cases resection of the spinal accessory is most efficient. Failures to effect a cure are attributed to a faulty technique (for preferably the posterior border of the sternomastoid is chosen to perform the resection) or the subsequent involvement of other muscles. The most frequent cause of failure is the erroneous diagnosis that the deeper muscles are not involved. When the latter condition obtains, the deeper nerves of the back ought to be singled out and resected. To accomplish this, the vertical incision of Noble Smith

is preferable to the transverse incision of Keene, since the former splits the muscles in the plane of their fibers in the search for the nerves up to their exit from their foramina; whereas Keene in addition severs the muscles. Ligation of the nerve or nerve stretching *per se*, or, as a preliminary, evulsion and simple division, seem no longer to be practiced. A most favorable word is spoken for Kocher's division of the muscles with or without division of the nerves as the best procedure.

In short, which is the operation of choice is a moot question; however, the indication for any operation only arrives after remedials have failed; then the first place is assigned to such instances as those in which the spasm involves one or two muscles of the same side; when muscles of both sides are involved the case is hopeless.

The statistical *résumé* is as follows: Accessory stretching eleven times, with three cures; resection sixty-eight times, and twenty more or less improved. Of these, in fifteen instances, a subsequent neurectomy was performed thirteen times, with ten cures and three improvements, and twice sternomastoid myotomy was successfully carried out.

Finally there are two cases in which neurectomy was performed primarily; thus affording a total for neurectomy of seventeen cases with eleven cures, which compares very favorably with de Quervain's analysis of Kocher's operation of twelve cases with seven cured.

A satisfactory and lasting result may only follow after the lapse of many months. On the other hand, other muscles may become involved at this time. In such instances cortical or specific centers must be involved.

CELLULOID AS MATERIAL FOR FLAT-FOOT SUPPORTS.

FREIBERG (*Boston Medical and Surgical Journal*, Nov. 8, 1900) assumes that the object of the flat-foot brace is to support the depressed or weakened arch as much as is compatible with comfort, and therefore to the extent permitted by the flexibility of the foot. The flexibility of the foot, however, is a factor which will be found to vary within fairly wide limits, even in feet which are not the seat of the inflammatory stiffness so frequently present in flatfoot. The amount of correction which must be made in the plaster cast is an uncertain thing and one which is really done by guess, so that it is believed to be a common experience that more or less change is required to be made in the finished plate in order to make it comfortable or efficient in the maximum, as the case may be. After considerable experiment with the following method it is believed that it can be offered as being simpler, but also more exact, than the use of a corrected plaster cast.

A pattern is first to be made which differs according to the type of support which it is desired to produce. This is made upon an impression of the sole of the foot according to the method of Schanz, except that the writer believes the following method to be less objectionable than the use of soot or other black material, and that it furnishes at once a permanent record: The impressions are taken on pieces of cardboard obtained from the paper stockhouse under the trade name of "black showcard." A piece being cut of proper size, say 5½ x 12 inches, it is fastened to a board of slightly larger size with drawing tacks, and its dull black surface is rapidly coated with a fairly thick solution of shellac in alcohol. In the meanwhile the patient has been rubbing his foot in a pan upon whose bottom ordinary talcum powder has been evenly sprinkled. The patient should bear his weight upon the foot and rub in the powder thoroughly by moving the foot about. When the spirit in the shellac has evaporated sufficiently to leave a sticky feel, but without adhering to the finger, the board is taken to the patient, from whose foot the excess of powder has been blown, and he is told to bear his weight upon it. While he is doing so the contour of the foot may be scratched in with a suitable sharp instrument. The outline of the impression as well as the contour of the foot is now drawn in with white ink. By interposing tissue-paper between each pair of impressions, they may be conveniently and indefinitely preserved.

To make the pattern a piece of tissue-paper is placed upon the impression, and the pattern then drawn with the outline of the impression and the contour of the foot in plain view. The paper is then cut out, and from this paper pattern another is cut in sheet lead about one-sixteenth inch in thickness. This lead pattern is now hammered by rough guess into the shape of the future support, a horn hammer or the handle of a file being used for this purpose. Due regard must be had for the "balance" of the support while so doing. The hammering of the sole has a tendency to make the whole piece curl,

and it is well from time to time to press that which is to come in contact with the sole of the shoe against a plain surface so as to be able to properly estimate the amount of arch which is being given.

This having been done, the pattern is fitted to the patient's foot, and with a very little practice one is able to obtain a perfect fit with a few taps of the hammer. It will be found best not to attempt altering the lead pattern with the finger, but always with the hammer, not forgetting the "balance" each time that it is so changed. This pattern when so fitted is intended to serve as a form on which to mold the celluloid, or in case a metal support is to be made, the pattern instead of the foot is used to make the cast upon which the workman fits the brace.

In working with celluloid the material is first cut out in proper shape, a scroll saw being best adapted for this purpose. Celluloid or rubber scrapers made for the use of dentists will be found well adapted for rounding the edges, and they can then be made smooth with fine sandpaper.

The celluloid is then superimposed upon the lead pattern, which must be handled with some care, for while it withstands the pressure which is necessary, it can nevertheless be easily bent by striking the floor or any hard object with force. The celluloid is fastened to the lead pattern with clips or with rubber bands, and it is necessary to see that now and afterward during the shaping process the outer edges of the celluloid and lead coincide.

By means of forceps with smooth jaws, plate and pattern thus clamped together are now lowered into boiling water, which must be of sufficient depth to cover them. As soon as the celluloid has begun to soften it should be gently pressed down to the pattern, and when thoroughly flaccid the whole is removed from the vessel with the forceps by one hand and received by the other hand, which is protected from the heat by a towel folded several times. The celluloid, still kept hot by the lead underneath, is now made to fit the pattern accurately. This can be done quickly and with ease. The whole is now immersed in cold water for a few minutes, and is then ready to apply to the patient. The plate may be given a finish by rubbing the whole of it with fine sandpaper.

If it is desired to make a plate with an external flange, the pattern having been shaped accordingly, this must first be shaped freehand, so that when the celluloid is placed upon the lead the flange as well as the outer edges of the plate and pattern may coincide.

The material which has been used in these experiments is known by the trade name of "pyralin" and has been found of uniform quality. Three thicknesses have been used, $\frac{1}{16}$, $\frac{1}{10}$, and $\frac{1}{8}$ inch. The thickness to be used depends upon the weight of the patient, and in scarcely less degree upon the flatness of the arch as shown by the impression. Material of $\frac{1}{16}$ inch is used as a rule for children only and for persons weighing less than 100 pounds.

Absolute accuracy cannot be claimed for the above method, especially when celluloid is used, for it is the under surface of the celluloid which is shaped to the pattern instead of the upper, and the inaccuracy will be in direct ratio to the thickness of the material. In practice this has been found unimportant, however. In addition it does not appear that such a degree of accuracy has been reached in the treatment of flatfoot as to constitute a serious objection. When the lead pattern is used to obtain the plaster cast in the manufacture of metal supports, the inaccuracy is, of course, much less.

THE REMOVAL OF PELVIC INFLAMMATORY MASSES BY THE ABDOMEN AFTER BISECTION OF THE UTERUS.

KELLY, in an address delivered before the Southern Surgical and Gynecological Association, November 13, 1900, calls attention to the great advantages which accrue from bisection of the uterus in certain cases of pelvic and inflammatory diseases. In the ordinary cases classed under this general heading the ovaries are only accidentally involved; and as a rule one or both can be saved even though the tubes have to be sacrificed. If one ovary is saved it is necessary also to leave the uterus, since thus is conserved the function of menstruation and the internal secretion of the ovary. Where the ovaries are hopelessly affected, they should be removed together with the uterus whenever it is possible. By freeing the tube and the ovary on the least adherent side first, after tying off the broad ligament and pushing down the bladder and securing the uterine artery, the most difficult side is easily reached and enucleated, by cutting across the cervix and exposing and ligating the opposite uterine vessels. The uterus is then pulled up until the round ligament is caught

and divided. At this point the operation may follow one of two courses, according to the difficulties encountered. In the first place, if after dividing the uterus and pulling it up the remaining tube and ovary can be readily enucleated by peeling them out from below upwards and by working with the fingers in the lower and anterior part of the pelvis just opened up by the detachment of the uterus, then the enucleation may be concluded by removing all the structures *en masse*. In the second place, if the tube and ovary on the far side are densely adherent and offer any serious difficulties in the enucleation, the uterus should be clamped off at the cornu and removed with one tube and ovary, leaving the more difficult side to be dissected out after emptying the pelvis, securing all the advantages of increased space and light.

In cases more difficult than those ordinarily encountered—for example, when there are pelvic abscesses on both sides densely adherent to all the surrounding structures, including the uterus, with this organ almost or quite buried in a mass of adhesions—Kelly advises the following procedure:

If the uterus is buried out of view, the bladder is first separated from the rectum and the fundus found. Then if there are any large abscesses, adherent cysts, or hematomata, they are evacuated by aspiration or puncture, and the rest of the abdominal cavity is well packed off from the pelvis.

The right and left cornua uteri are each seized by a pair of Museau forceps and lifted up, the uterus is then incised in the median line in an anteroposterior direction, and as the uterus is bisected its cornua are pulled up and drawn apart. With a third pair of forceps the uterus is grasped on one side of its cut surface, as far down in the angle as possible, including the anterior and posterior walls. The Museau forceps of the same side are then released and used for grasping the corresponding point on the opposite cut surface, when the remaining Museau forceps are removed. In this way two forceps are in constant use at the lowest point. Kelly commonly applies them three or four times. As the uterus is pulled up and the halves are everted, it is further bisected down into the cervix, or if the operator desires to do a panhysterectomy, all the way down into the vagina. The uterine canal must be followed, if necessary, using a grooved director. The Museau forceps are now made to grasp the uterus well down in the cervical portion, if it is to be a supravaginal amputation, and the cervix is bisected on one side. As soon as it is divided and the uterine and vaginal ends begin to pull apart, the under surface of the uterine end is caught with a pair of forceps and pulled up, and the uterine vessels, which can now be plainly seen, are clamped or tied. As the uterus is pulled still further up, the round ligament is exposed and clamped; finally a clamp is applied between the cornu of the bisected uterus and the tube-ovarian mass, and one-half of the uterus is removed.

The opposite half of the uterus is also taken away in the same manner. The pelvis now contains nothing but rectum and bladder, with right and left tube-ovarian masses plastered to the side of the pelvis, affording abundant room for investigation of their attachments as well as for deliberate and skilful dissection; the wide exposure of the cellular area over the inferior median and anterior surface of the masses offering the best possible avenue for beginning their detachment and enucleation.

The operator will sometimes find on completing the bisection of the uterus that he can just as well take out each tube and ovary together with its corresponding half of the uterus, reserving for the still more difficult cases, or for a most difficult side, the separate enucleation of the tube and ovary after removal of the uterus.

The most critical point is the bisection of the cervix and controlling the uterine vessels. If the cervix is slowly and cautiously severed with a steady traction on the uterus under perfect control, there is no danger of seeing the organ suddenly tearing out with rupture of the uterine vessels and frightful hemorrhage. As the divided cervix is pulled apart, the uterine vessels are beautifully exposed and easily caught. Only a clumsy operator will plunge his needle or a pair of forceps deep down into the tissues and clamp a ureter. By cutting up the cervix so as to leave a sliver on each side, the uterine vessels can be caught at a higher level than that of the division of the cervix.

If the uterus is densely adherent to the rectum all the way up to the fundus, a modification of this plan of operating may be followed; the anterior face of the uterus may be bisected and the cervix divided horizontally and the uterine vessels caught, and the rest of the uterus then carefully divided up its posterior surface in a direction from the cervix toward the fundus. The relations

to the rectum are examined as the division is made, and at any point where it seems necessary a piece of the uterine tissue may be left adherent to the bowel. After the bisection the rest of the enucleation is effected as described above.

THE TREATMENT OF SENILE PRURITUS.

JAENECHE (*Centralblatt für Innere Medicin*, No. 48, 1900) calls attention to the wearing and harassing nature of senile pruritus and its intractability to the therapeutic means commonly recommended for its alleviation. He suggests a treatment which, though not entirely curative, causes so much alleviation that the patients consider themselves cured.

Jaeneche noted that the regions affected were dry and glazed and ill-nourished, and that on brushing the skin a great quantity of dead and degenerated epithelial cells could be collected. His treatment consists in regular brushing with a soft brush, which removes the degenerated superficial epithelial cells, increases the nutrition of the part, and brings about so much relief that the patients may go for days or even weeks with perfect comfort. The brushing is repeated at first three times daily for from ten to twenty minutes. These treatments are reduced to twice a day and finally once every second day; a longer interval than this should not be allowed to elapse. There is often no improvement for days, nor is there any marked alteration in the nutrition of the skin. But shortly the patient experiences marked relief, and in many cases is entirely freed from his suffering. It is important that no water should come in contact with the affected regions, since this, though it is followed by a temporary alleviation, renders the treatment by brushing quite futile.

Patients frequently brush with so much vigor that the skin is wounded and bloody and the itching is at first increased in intensity. Lanolin inunctions are serviceable adjuncts to this form of treatment. A number of illustrative cases are reported.

THE DIAGNOSIS OF SUPPURATIVE APPENDICITIS.

ROBBIN (*Medical Record*, No. 17) lays much stress on blood examinations in the diagnosis of suppurative appendicitis. He says that the white blood count will often swing the pendulum in the direction of the diagnosis of one disease or another. Especially is this true in cases of suppuration complicating an infectious or inflammatory disease. Thus a sudden hyperleucocytosis in the course of typhoid fever will point to a complication, and if accompanied by sudden onset of pain in the abdomen will be a sufficient justification for an exploratory incision, as is the practice in the Johns Hopkins Hospital. A hyperleucocytosis will at once differentiate a suppurative appendicitis from simple colitis, typhoid fever, ovarian neuralgia, impaction of feces, and floating kidney. Developed during the course of a catarrhal appendicitis it will point to suppuration with as much precision as any of the diagnostic signs in our possession.

By means of a blood count pus can be detected within twenty-four hours, and a fatal case be thus converted into a very favorable one. What other means have we of diagnosing suppurative appendicitis? Unfortunately, none. What we are able to diagnose is a purulent peritonitis, but then we have done our patient very little good, even if we are able to fill out a correct death certificate. We may also occasionally detect a walled-off abscess, if it points externally, but in how many cases does the abscess take such a favorable turn? It appears rational, therefore, that a frequent blood count in cases of appendicitis is almost an imperative necessity. Dr. Robbin says "frequent," because in some fulminant cases the advent of fatal toxemia may be so rapid that no increase of leucocytes is present. This is fully in accord with the experiments on animals performed by Havet, who has shown that whenever the dose of staphylococci injected was very large, the ability of the organism to produce leucocytes was proportionally abolished, and instead of the usual hyper- a hypoleucocytosis took place. Similar observations were made by Everard, Demoor, Schultz, and others.

Cabot reports four cases of appendicitis with general purulent peritonitis in which no hyperleucocytosis was found. When, however, examinations are made frequently such mistakes would in the majority of cases be avoided, for we would always detect the hyperleucocytosis before the organism would become sufficiently depressed to fail to react. With all these facts before us, we can hardly fail to appreciate the important rôle a blood count always plays in the diagnosis of suppurative appendicitis.

OPERATION VS. TRUSS IN THE INGUINAL HERNIA OF CHILDHOOD.

RUSSELL (*The Lancet*, No. 4025, 1900), basing his conviction upon logical and anatomical grounds, holds that oblique inguinal hernia never occurs either in infancy or at a later age in the absence of a congenital sac. He states that it appears to be a pure assumption, based upon unsound and insufficient reasoning, that because hernia may be acquired in other situations it may also be acquired through the internal ring. If this view of his is correct it is perfectly evident that the error which has pervaded and vitiated all our views upon the subject of inguinal hernia, and which has been answerable for such a multitude of conflicting remedies, is the non-recognition of the fact that the sole cause of inguinal hernia is the presence of a congenital sac in the inguinal canal.

This point can be made out only in one way—by the abolition of the truss as a means of curing inguinal hernia in children. And it therefore becomes apparent that if this doctrine be accepted it affects our knowledge of the incidence and right treatment of inguinal hernia occurring in every period of life.

THE VALUE OF ANTISTREPTOCOCCIC SERUM.

WALTON (*The Lancet*, No. 4025, 1900) notes that in two cases he has observed a genuine remedial action on the part of the antistreptococcic serum.

The first patient, twenty years old, became septic from the third day of her delivery. On the fifth day temperature was 101° F. and her pulse 130. Ten cubic centimeters of antistreptococcic serum was injected, and the following morning there was a distinct though slight improvement, which was dissipated by the evening of the same day. Therefore, a further injection of ten cubic centimeters was ordered, which was followed by an improvement for two or three days. A relapse then set in, and by the sixteenth day the temperature reached 103°. On the next morning ten cubic centimeters of the serum was injected into the right arm. This was followed by a pleuritic catch in the right lung. Two days later sodium salicylate was given, which was followed by a fall of temperature and the recovery of the patient.

The second patient was suffering from diphtheria, but before the diagnosis could be made she was given ten cubic centimeters of the antistreptococcic serum with marked benefit to her.

Reviews.

PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST. By Richard C. Cabot, M.D.
New York: William Wood & Company, 1900.

Dr. Cabot is known to many of us through the excellent work which he has done upon diseases of the blood. Indeed, his book upon this subject may be considered the standard in the English-speaking profession, and not only is that contribution creditable to him, but his original investigations into the physiology and pathology of the blood are also creditable to American medicine. When, therefore, he presents to us a book upon physical diagnosis we naturally examine it with greater care than perhaps would be accorded the work of an unknown man. As soon as we do so we meet in the preface certain statements which are, to say the least, somewhat startling. He tells us that his object in preparing this small work rests upon his inability to find any other small work upon the subject which does not contain glaring errors; that the correct books are too large, and the small books are out of date and repeat such well worn myths as that the aortic second sound is louder than the pulmonic sound; that aortic regurgitant murmurs are to be heard best in the second right interspace, etc., etc.

It seems to us that this is a pretty high-handed arraignment of current medical literature, particularly as there is just ground for doubting whether he is entirely correct in some of his statements. For example, it is a matter for debate whether it is true that the aortic second sound is not as loud as the pulmonic sound. This is a question which has been recently discussed and by no means settled. At a meeting of the Section in Medicine at the College of Physicians of Philadelphia less than a year ago this question was brought up, and it was thoroughly discussed. Indeed, if we remember correctly, the discussion was precipitated by the statement of a Boston practitioner that the pulmonary sound is the louder of the two. With singular unanimity most of the physicians present at that meeting expressed their belief that in health the aortic sound is usually most clearly heard; and while a distinction must be made between loudness and accentuation, it seemed to be the universal opinion that both of these characteristics are marked over the aortic area. Of course, it is true that in children the pulmonary sound is apt to be louder than the aortic.

We presume that Dr. Cabot's statements are, to a certain extent, based upon a paper entitled the "Relative Intensity of the Second Sounds at the Base of the Heart," which appeared in the *Medical Record* for January, 1900. This paper professed to prove that the pulmonary sound was the louder of the two; although it actually concluded that the aortic sound is usually heard most clearly, and so far as we could determine from reading it, gave no very definite assurance that the pulmonary sound was actually louder. Even supposing that the pulmonary sound is the louder of the two, as a matter of fact the question is certainly so undecided and so unimportant that the author is hardly justified in naming it as the prime error of the ordinary text-book.

There are a number of other points in the volume which may be criticized, and some of these are in connection with the illustrations. In the endeavor to have photographs of the various methods of physical diagnosis we sometimes get curious results from foreshortening; as, for example, in Fig. 39, where the student will probably gain little information as to the method which he should employ in percussing the apex of the thorax. So, too, Fig. 40 requires a little study to understand what the third hand is meant to represent, as does also Fig. 41. There is also a certain amount of duplication of the illustrations, as in the case of Fig. 130.

While we have made these criticisms, which have been largely provoked by the militant preface that we have quoted, we would not have it thought for a moment that Dr. Cabot's book is not creditable to him. On the contrary, it is a first-rate little manual of exactly what it professes to be, and we have no doubt that it will prove popular with those who are interested in this subject—and who is not? The illustration given on page 142 is evidently taken from another work, but no credit is given to its source. However, this illustration elucidates one of the most important points in connection with the mechanism of the heart which is frequently overlooked, namely, the sphincteric action of the muscular fibers about the cardiac orifices.

MALARIA: ACCORDING TO THE NEW RESEARCHES. By Prof. Angelo Celli. Translated from the Second Italian Edition by J. J. Eyre, with an Introduction by Dr. Patrick Manson. Illustrated.
New York: Longmans, Green & Co., 1900.

There is no subject of greater scientific interest to medical men in all portions of the world than that with which this book deals; and there is no one whose opinions in regard to malaria deserve more careful attention than do those of Professor Celli. We therefore welcome this excellent translation, and think that the publishers are to be thanked for having presented it to English-speaking physicians. Not only does Celli give a most interesting summary of our present knowledge concerning this important disease, but he also closes by giving us a valuable bibliography, arranged by years, concerning malarial history—a bibliography which extends over nearly twenty pages. The volume not only deals with the history of malaria, but with its economic losses, its causation, the vehicles of infection, the causes of predisposition or immunity toward malaria, and its prophylaxis. In addition to this there are three maps which show the distribution of malaria along the Italian railways, a map of the Pontine territory, and the hydrography of ancient Rome. There is no portion of the work which is devoted to the therapeutics of the disease, for that is not its object, in the sense that it is intended to teach us concerning the use of drugs for alleviation of the infection; but it conveys to us a knowledge of malaria which must be valuable to any one who is called upon to treat this infection.

STRINGTOWN ON THE PIKE. A Tale of Northernmost Kentucky. By John Uri Lloyd. Illustrated.
New York: Dodd, Mead & Co., 1900.

Those of our readers who are also fortunate enough to peruse *The Bookman* will have been interested probably during the last few months in the story of "Stringtown on the Pike," which has been appearing in *The Bookman* as a serial. It is not our custom to review in these pages books which deal with matters that are not medical, but we believe that when a member of the medical profession or pharmaceutical craft writes a book which is not only creditable to American literature but especially creditable to the professions we have named, the results should be brought to the notice of his fellow workers in these two fields. The story is one which deals chiefly with five characters—the hero, a young man who passed his boyhood days during the war, an old slave, Cupe, and his wife Dinah, a "red-headed boy" who was a sort of social Ishmaelite, and last, but not least, the heroine of the novel, Susie. There are three things in connection with this book which have made an impression upon us over and above its general interest. The first is the intimate knowledge on the part of its author of folklore among

the Southern negroes; the second is the active character of the story from chapter to chapter which prevents it, at any time, from proving dry or uninteresting; and the third is the touch of human nature which makes the work seem like a true story of actual life, and which is perhaps the most creditable part of the production. We commend the story cordially to our readers—to our Northern friends because it will give them an insight into an interesting phase of Southern life, and to our Southern subscribers because it will bring back to their minds in a pleasant way many of the facts which with the lapse of time are perhaps becoming dimmed or forgotten.

A MANUAL OF MATERIA MEDICA AND PHARMACOLOGY. By David M. R. Culbreth, Ph.D., M.D. Second Edition, Enlarged and Thoroughly Revised. Copiously Illustrated.
Philadelphia: Lea Brothers & Co., 1900.

Professor Culbreth's work is well known to most teachers of materia medica and therapeutics. It deals more largely with medical botany than most of the current works on this subject, and can hardly be said to deal sufficiently fully with the subject of pharmacology, as that term is commonly employed to day, to justify the inclusion of this word in its title. The book also does not go exhaustively into the subject of therapeutics. Indeed, in the consideration of the therapeutic application of the drugs it is exceedingly brief, telling the purposes for which the drug is used, but not definitely stating how or when it is to be given. It strikes one as being more a book for students of pharmacy than for students of medicine, and as such can be cordially recommended, as it gives a most careful and accurate description of the various drugs, properly classified, and the text is clear and easily comprehended. It is not, however, a book which would give any material aid to the practitioner who is desirous of learning facts in regard to the value of a given drug in the treatment of a malady.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Specially Prepared Articles. Edited by Henry W. Cattell, A.M., M.D. Volume III, Tenth Series, 1900.
Philadelphia: The J. B. Lippincott Co., 1900.

This volume of the International Clinics contains a series of very interesting clinical articles, many of them dealing with therapeutic subjects. The authors of these lectures, or articles, are men of considerable reputation in all parts of the world, and while as a rule the articles or lectures cannot be considered as exhaustive, at the same time they offer pleasant medical reading, and provide the physician with valuable information which perhaps he would not take the trouble to seek in the ordinary text-books. The illustrations which are found throughout the pages are most of them unusually good and satisfactory from the standpoint of illustrating the text, and they are very well developed reproductions of original photographs.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS. For Students and Physicians. By John H. Musser, M.D. Fourth Edition, Revised and Enlarged. Freely Illustrated.
Philadelphia: Lea Brothers & Co., 1900.

This, the fourth, edition of Dr. Musser's work appears thirteen months after the appearance of the third edition, and bears the marks of careful revision on the part of its distinguished author, who, as we have said before, brings to its preparation not only a complete knowledge of medical literature, but also with it practical experience. It is by long odds the most exhaustive of all works on medical diagnosis which are now before the profession. Not only does it deal with symptomatic diagnosis, but with laboratory methods for the study and investigation of disease for diagnostic purposes, so that it may be considered in many respects a complete practice of medicine as well as a work on the differentiation of one disease from another.

Many of the colored plates which Dr. Musser has introduced are original, and all of them show what they are intended to show, which is more than can be said of some similar illustrations in contemporaneous medical literature, which are introduced more for the purpose of beautifying the book and making it attractive to possible purchasers than with any real benefit in explaining the text or aiding diagnosis. We have cordially commended the earlier editions of Musser's Diagnosis to our readers, and it goes without saying that we can do so with increasing confidence now that this fourth and most complete edition has appeared.

OBSTETRICS. A Manual for Students and Practitioners. By David James Evans, M.D.
Philadelphia and New York: Lea Brothers & Co.

This volume belongs to a series of pocket text-books, many of which we have already mentioned in earlier issues of the GAZETTE. It does not profess to contain anything original, but simply a brief summary of obstetric practice, and is evidently designed more for the use of students than for active practitioners. So far as we have been able to judge, it has been well compiled, and its teachings are safe and reliable.

LABORATORY DIRECTIONS FOR BEGINNERS IN BACTERIOLOGY. By V. A. Moore, B.S., M.D. Second Edition.
Boston: Ginn & Company, 1900.

This is a small octavo of less than 150 pages, and is, as its title indicates, distinctly a laboratory manual to be kept by the side of the student in studying bacteriology. It is not sufficiently complete to enable it to be of any value to the trained worker in its branch. It was evidently designed chiefly as an aid to the author in his own teaching, and is reliable. His students are to be congratulated upon so excellent a course.

MEDICAL VISITING LIST FOR 1901.
Philadelphia: Lea Brothers & Co., 1901.

This most excellent list, which is probably familiar to most of the readers of the GAZETTE, comes out early enough for physicians to obtain it and to enter their engagements for the coming year at this time. It contains, as have previous editions, a small amount of valuable information in regard to various weights and measures, examination of the urine, artificial respiration, poisons and antidotes, a dose table, some therapeutic reminders, and finally, and perhaps most valuable, brief directions for the ligation of arteries, with a diagram illustrating the areas where the incisions should be made.

A MANUAL OF HYGIENE AND SANITATION. By Seneca Egbert, A.M., M.D. Second Edition. Illustrated.
Philadelphia: Lea Brothers & Co., 1900.

The first edition of this book appeared about two and a half years ago. It is a small octavo volume of less than 500 pages, in which the subjects named in its title are taken up and discussed in a brief and interesting manner without dipping as deep into details as the more exhaustive works upon this subject which have been published during the last few years. It can be cordially recommended to be put into the hands of the laity by medical men who desire their patients to become more conversant with the proper method of heating, ventilation, and sanitation in general.

THE PRINCIPLES OF TREATMENT AND THEIR APPLICATION IN PRACTICAL MEDICINE. By J. Mitchell Bruce, M.A., M.D., F.R.C.P. Adapted to the United States Pharmacopœia by E. Quin Thornton, M.D.
Philadelphia: Lea Brothers & Co., 1900.

Dr. Mitchell Bruce is not only well known to English physicians but to many American practitioners as well; and those who know him cannot fail to be impressed with the fact that he is one of the best and most careful medical clinicians in London to-day. On the one hand he does not represent that ultra-scientific type which fails to recognize the personal equation in each individual case of disease, nor, on the other hand, is he too apt to practice by routine methods. When, therefore, we heard that he was to publish this work, we looked forward to its appearance with very great interest, since we felt sure that whatever he wrote would possess a value, because it would reflect his own wide experience, and also because it would show that he was thoroughly in touch with therapeutic literature. In this expectation we have not been disappointed. Dr. Bruce has prepared a most admirable practical guide to the treatment of disease. Nearly every chapter concludes with a considerable number of prescriptions, which Dr. Thornton has very carefully and accurately adapted to the United States Pharmacopœia. But it is not these characteristics of the book which most deserve commendation; it is the method which its author follows in teaching us how to make a diagnosis which will lead to treatment that he excels in. The book can be cordially recommended, not in the sense of a text-book which deals with many remedies and their treatment by drugs, but as a manual which will give its reader a good grasp of the way in which he is to approach a case successfully both from the diagnostic and therapeutic standpoints.

A HANDBOOK OF DISEASES OF THE EYE AND THEIR TREATMENT. By Henry M. Swanzy, A.M., M.B., F.R.C.S.I. Seventh Edition. One Hundred and Sixty-five Illustrations.
Philadelphia: P. Blakiston, Son & Co., 1900.

The present edition of Mr. Swanzy's well known and highly appreciated text-book contains among other additions an account of Mackenzie Davidson's method of employing the Roentgen rays for the detection and localization of foreign bodies within the eye, and an elaborate description of Mr. Mules's operation for ptosis. A tabular statement of the action and relative values of the various mydriatics, myotics, and local anesthetics, prepared by Dr. Louis Werner, has been incorporated. With some of the statements in this table the reviewer does not find himself in accord; for example, that homatropine will not produce complete cycloplegia, and that hyoscyamine is too active a poison to be recommended as a mydriatic. With few exceptions the mydriatics will produce toxic symptoms if they are not properly used, and for the same reason homatropine

may be an imperfect cycloplegic. Carefully employed, hyoscyamine is a safe mydriatic and homatropine a reliable cycloplegic in healthy eyes.

As in previous editions, the portion of the book devoted to ocular diseases and the symptoms liable to accompany focal brain disease is worthy of the highest praise, as is also the excellent chapter on the pupil in health and disease. In fact, from cover to cover the book is admirable and may be unreservedly recommended. G. E. DE S.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By Lewis A. Stimson, M.D. Third Edition. New York and Philadelphia: Lea Brothers & Co., 1900.

This new edition of Stimson's classical work is at first glance chiefly characterized by its wealth of illustrations, a noticeable and admirable feature of which is the introduction of many instructive *x*-ray plates. The author's teaching is mainly based upon his experience in the Hudson Street Hospital, where, in the last five years, there have been admitted nearly 7000 cases of fracture and over 700 dislocations.

After a brief chapter devoted to general considerations, the pathology, etiology, symptoms, and diagnosis of fracture are considered. Further chapters are then devoted to repair, complications and remote consequences, and treatment. Stimson especially warns against a plaster-of-Paris dressing, unless it is kept under constant observation. He holds that carved splints, sold in packages of assorted sizes, have few if any points of superiority over those improvised for the occasion. The fracture box, he states, is now almost wholly discarded for the Volkmann splint, which is a shallow gutter and foot-piece made in several lengths, and fitted with a movable support, by which the foot can be raised from the bed.

As to the ambulatory treatment of fracture of the leg, Stimson states that the advantages claimed for this method have not been substantiated. As to the management of joints after fracture, the author holds that so long as the joint is swollen and hot, so long as its use is followed by an increase of swelling and heat, and by persistent pain, so long must it be kept at rest, and so long must active treatment be limited to massage or elastic compression. As a rule, this attitude of non-interference may be maintained without harm until after union of the fracture has become complete. Forcible passive motion, with or without anesthesia, is always harmful before the second month, and even after that time it is far more likely to do harm than good. This procedure should be almost wholly abandoned, and in its place we should resort to massage, constant use within existing limits, and possibly to hot-air baths.

In the section devoted to fracture of the nose, Stimson states that he has entirely cured the saddle-back deformity, resulting from a failure to restore the broken fragments to their normal position, by the introduction of aluminum and gutta-percha plates, and that these have remained in place for several years without causing irritation. These plates he has introduced through a small cut on the side of the ala, and has prepared a place for them by subcutaneously freeing the skin with a knife, introduced through the small cut and swept freely across the bridge. In the treatment of fracture of the lower extremity of the humerus, Stimson states that if reduction once be effected good results will nearly always be obtained, and that the most important point in most cases is that the flexed forearm should not be supported at the elbow but at the wrist; the limb being protected by a splint, preferably one of plaster of Paris, extending along the posterior aspect from the wrist to the shoulder.

In the section of the book devoted to dislocations, the modern methods of reduction are fully described.

This book, representing, as it does, the results of an enormous personal experience, should be studied by all who are likely to be called upon to treat fractures and luxations.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard, M.D., M.S., F.R.C.S. In Seven Volumes. Vols. II, III, and IV.
Philadelphia and New York: Lea Brothers & Co., 1900.

It should be remembered in reviewing this Manual of Cheyne and Burghard that it is devoted chiefly to questions of treatment, only the salient points and symptoms in pathology being given. The authors have not attempted to give anything like a complete summary of methods of treatment that from time to time have been proposed. Only those plans are described which their experience has led them to believe are the best. But with regard to these the effort has been made to state exactly and in detail what they themselves would do under given circumstances. There has been no effort made

to mention all the exceptional conditions that have been met with, but rather are included all the circumstances with which the surgeon is most commonly called upon to deal.

The first section of the second volume is devoted to deformities, beginning with those affecting the fingers and toes, and ending with those of the hip, including coxa vara, to which a special chapter is devoted. In the chapter devoted to congenital dislocation of the hip there is a very thorough *résumé* of the various methods of treatment, the whole being summarized as follows:

"We recommend, therefore, that when the case is seen in infancy the treatment by manipulation should be employed until the child is two or three years old, and then Lorenz's bloodless method should be carefully carried out. It is only in event of the complete failure of this method, or in cases which do not come under observation until the child is seven or eight years of age, that the open operation should be resorted to. The latter is a very serious matter when performed on very young children. The operation is prolonged, and there is, therefore, great risk from shock, and a considerable amount of blood is lost; further, accidents, such as prolonged suppuration and general septic infection, have also happened. Although, of course, these ought not to occur, it must be admitted that, the operation being a very prolonged one, it is easy for accidental infection to occur during its course, and, moreover, since it is in the immediate vicinity of the perineum, the wound is very apt to become soiled subsequently, and therefore the risks of sepsis can never be entirely ignored."

The second section is devoted to surgical affections of the tissues. Under this rather indefinite heading are included the skin and subcutaneous tissues, bursæ, the fasciæ, the lymphatic glands and vessels, the tendon sheaths, the tendons, the muscles, the nerves, and the blood-vessels. The treatment appropriate to wounds, inflammations, and infiltrations is described, and in the main the technical procedures are as satisfactory and detailed as those found in the best operative surgeries.

The third volume of this manual is devoted to fractures, diseases of bones, and amputations. In the treatment of fracture of the clavicle the authors select recumbency as the best method, the patient lying on his back, on a hard, flat mattress, with small, narrow, hard pillows or pads between the shoulder-blades, for two or three weeks. They state that the next best method of avoiding deformity is the old plan of pulling back the shoulders by means of handkerchiefs, the arm being then supported by a large handkerchief sling which raises and pushes forward the elbow and is fastened around the neck; a third handkerchief binding the arm to the side and passing around the trunk just above the elbow completes the apparatus. Sayre's method is also described, but no mention is made of the Velpeau dressing.

In treating the fractures of the humerus it is interesting to note that the authors sometimes find extension necessary. They state that the important points in the treatment of fractures about the elbow are to secure accurate adaptation of the broken surfaces to maintain the fragments in position while consolidation is occurring, and at the same time to prevent the occurrence of adhesions which if unchecked might make it impossible to obtain a movable joint. The supracondyloid fracture should always be reduced under full anesthesia, and the fully flexed position is the only one that is likely to maintain the fragments in true position. Passive motion is begun at the end of a week and is kept up daily. After a fortnight the arm may be brought down to a right angle, and after a short time longer the angle may be gradually increased.

In the T-shaped fracture of the elbow-joint they state that the only probability of getting a really good result is by operative interference. This consists in cutting down upon the fracture and securing the broken ends in proper position. In fracture of either condyle alone the patient should be put under an anesthetic and the fragments manipulated into proper position; the limb is then fixed in flexion, or through an incision the fragments should be adjusted and secured in place. The latter is considered the better method.

Operative treatment is advised for fractures of the patella, an open operation being the one of choice. In considering amputation of the hip-joints, it is somewhat surprising to note that no mention is made of controlling a hemorrhage by means of steel pins and a rubber tube.

The fourth volume is devoted to surgical affections of the joints and of the spine. The first nine chapters deal with dislocations, and herein will be found fully illustrated the various modern methods of reduction and full details of after-treatment.

There are other chapters devoted to sprains and wounds.

Under the general caption of inflammatory affections will be found chapters devoted to inflammatory infections, tuberculosis, neurotic affections, rheumatoid arthritis, loose bodies, and ankylosis. Diseases of individual joints are then considered, special chapters being devoted to the hip, the knee, the ankle and tarsus, the shoulder, the elbow, and the wrist and hand.

The surgical affections of the spine include injuries to the spine, spina bifida, kyphosis, scoliosis, tuberculous disease, spondylitis deformans, acute osteomyelitis, new growths of the spine, hysterical spine, and sacrococcygeal tumors.

It may be said of these books that each is an improvement upon its predecessor. The first volume is somewhat of a disappointment, but, possibly profiting by experience gained in the preparation of this, the subsequent volumes are deserving of the highest praise. The subject-matter is so arranged as to be most accessible; the teaching, with the exception of that devoted to the choice of antiseptics, is that commonly accepted. The therapeutic instructions are so clear and detailed that even those without much experience can put them into practice. The book is a most valuable addition to the library not only of the general practitioner but of the skilled surgeon as well.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

Sir Thomas Smith, at a recent meeting of the Royal Medical and Chirurgical Society, put forward some suggestions for a possible improvement in the method of removing stones and morbid growths from the interior of the bladder. Suprapubic cystotomy, on account of its easy execution, and the freedom from serious hemorrhage, shock, and injury to important structures, marks such an advance on the old operation of lateral lithotomy that surgeons have rested content without seeking even further improvement. The chief defect of the suprapubic method is the difficulty of drainage and asepsis in the open wound that remains after the operation; immediate closure of the bladder wound is so rarely a success that it has come into general disfavor. But whereas muscle surfaces fail to unite, the same is not true of muscle surfaces covered by peritoneum, when the opposed peritoneal surfaces readily unite. Sir Thomas Smith suggests that with the existing certainty of abdominal operation, the intraperitoneal may after all be the best route for suprapubic cystotomy; in this way the bladder can be opened where there is a peritoneal covering, and immediate closure of the vesical wound can then be satisfactorily effected. Scrupulous care should be taken to insure close apposition of the peritoneal surfaces, and the stitches should of course not penetrate to the interior of the bladder. He suggests the following procedure: The bladder, having been thoroughly cleansed with warm boric lotion, should be completely drained of all fluid, and then moderately distended with air. The wound above the pubes should be made somewhat higher than is customary. The bladder should then be opened from within the peritoneum, the surrounding parts being protected by sponge-packing. Finally the vesical wound should be closed as described. The desirability of Trendelenburg's position should be considered.

At the same meeting Walter Spencer read a paper on median perineal urethrotomy and cystotomy through a superficial transverse incision. He claimed no more originality for the method than that it was a modification of Celsus's procedure. Spencer's own operation is as follows: The patient, prepared by shaving and cleaning, is placed in the lithotomy position with the pelvis raised by a sand-bag. The central point of the perineum is then made the middle of a horseshoe-shaped incision of the skin, the ends of which terminate on either side of the anus just internal to the ischial tuberosities. By deepening the lateral portions of this incision the ischiorectal fossæ are exposed, and in the middle the external sphincter ani is detached from its connection with the central point of the perineum, care being taken not to cut into the bulb or the urethra. The anus and the lower portion of the rectum are now pushed backward with the fingers and held there by a flat retractor, the knife not being used lest the gut be injured. By retracting the anus and drawing the bulb forward there is exposed the prostate, the prostatic and membranous urethra, surrounded by the constrictor urethræ muscle, the bulb covered by the bulbo-cavernosus muscle, and the transverse perineal muscles inserted into the cen-

tral point. Whilst thus retracting the wound, the transverse perineal and the bulbar arteries or their branches, if cut, are clamped or tied. The urethra is next opened by an exactly median incision, commencing along the median raphe of the bulbo-cavernosus muscle, and extending backward through the membranous urethra to the prostate. It is of the greatest importance, in order to insure rapid healing, to keep exactly in the middle line, and there is no difficulty in doing this without the aid of a staff, although a median staff, accurately held, is of assistance when the urethra is permeable. But there is no difficulty in making this median incision without any guide when the urethra and prostate have been first of all exposed, as described. The urethral incision must be of sufficient length from the prostate forward to allow of subsequent manipulation without any tearing. Having opened the urethra along the middle line a probe-pointed gorget can be passed into the bladder, followed by the finger, which can now fully examine the bladder, aided by the counterpressure on the hypogastrium by the left hand. Owing to the larger superficial wound and the free opening of the urethra, there is not required that thrusting to get the tip of the finger beyond the neck of the bladder characterizing the ordinary median cystotomy, while lateral lithotomy opens the bladder, partly by cutting, partly by tearing, the left of the neck. A small speculum can be passed into the bladder and the wall viewed directly by aid of a small electric lamp. A rectal speculum with a slit is of service in examining an enlarged middle lobe of the prostate, which will partly project into the slit. Such an enlargement can be punched off and burnt down by the cautery in full view, while the speculum protects the sphincter vesicæ from injury. A firm enlargement of the prostate can be drawn down by a vulsella, and burnt or cut away, while the bleeding is completely controlled. A groove can be burnt in the middle of the enlarged prostate until the level of the floor of the postprostatic pouch is reached, which is thereby effectually drained, whilst all injury to the rectum is avoided by the preliminary retraction. Portions of an enlarged lateral lobe may be shelled out or punctured with the cautery point to promote absorption, and beyond lie the vesiculæ seminales, which are easily reached by a little further retraction of the rectum. There is ample room to use lithotomy forceps or a scoop, and to extract small or medium-sized stones from bladder pouches, or indeed to use one of the large perineal lithotrites. In cases of complicated stricture with fistulæ traveling back toward the rectum, the urethra is reached by a median incision behind the stricture, which can then be traced forward, and fistulous tracts outside the urethra are either excised or slit up.

After the necessary manipulations are completed the bladder can be fully washed out. All bleeding points are in view, and may be tied, or if in the prostate touched with the cautery. It is hardly necessary to insert any plug or tube; in any case it should be removed the next day.

When the legs of the patient are brought down from the lithotomy position, not only do the edges of the urethra come well into apposition along the middle line, but the transverse skin incision does so also in the folds between the anus, scrotum, and buttocks. This can be clearly demonstrated by turning the patient on his side after extending the legs; the edges of the curved skin incision will be found to have come naturally into place. There is therefore no need for any sutures.

The after-history of the cases shows that the leakage of urine through the perineum ceases in a week or ten days owing to the union of the urethra along the median line. Following upon this the skin wound completely unites, leaving a scar which forms a slight ridge across the perineum in front of the anus. The classical complications, recurrent hemorrhage and septic absorption, are absent, owing to the methods of operating, the free skin incision, the deliberation of the manipulations, the exactly median incision avoiding all rupture and lateral deviation and pockets, the complete arrest of hemorrhage, the free escape of urine afterwards.

Spencer further cited cases in illustration of the success of this procedure, from which he concludes that it is especially applicable to certain instances of complicated stricture, bladder calculi, and prostatic obstruction.

Dr. Maguire's Harveian lectures on the "Prognosis and Treatment of Pulmonary Tuberculosis" will be received with general favor by the profession. They introduce us to a novel method of treatment of pulmonary tuberculosis by injection of antiseptic agents into the veins. The experiments were tried first on animals, then most appropriately on the originator of the treatment, and finally on a series of patients. The initial attempts were made with mercuric cyanide and potas-

sic iodide of mercury on rabbits, but the results were far too serious to encourage their use in the human subject. Diastase, cytase, and nucleinic acid were also tried and found to be ineffectual, and in some cases harmful. He finally experimented with a pure solution of formic aldehyde. This was injected in the strength of 1 part to 2000 parts of normal saline solution, and 50 cubic centimeters was introduced at a time. By this means the drug is brought into immediate contact with the disease in the lungs in a state of considerable concentration, that cannot be attained either by subcutaneous injection or by inhalation. The results of fifty observations were recorded, and in all there was diminution of expectoration, decrease of fever, and in several cases disappearance of tubercle bacilli from the sputum.

Dr. Taylor, of Wroxham, as the result of twenty-five years' experience, extols the use of iodine in the treatment of diphtheria. In perusing the details of his procedure one is struck with the unusual freedom of the patients from any concurrent iodism. Treatment is initiated by a good dose of calomel; then the throat, the tonsils, back of the pharynx, and uvula are well swabbed with tincture of iodine. Subsequently tincture of iodine, a drachm to the five ounces of hot water, is used as an inhalation for five minutes every half-hour or more; the patients are advised to inhale the vapor through the nose as well as the mouth deeply into the lungs. We fear, bearing in mind the age incidence of diphtheria, that this advice must frequently fall on deaf ears. In this way it is claimed that antisepsis of the respiratory system is maintained, and exfoliation of the membrane hastened. In addition to the above methods of administration he sometimes gives small doses of the tincture of iodine internally, and volatilizes on a hot shovel some grains of iodine for disinfection of the air in the room.

Dr. Jones, of Bunbury, claims for liquor thyroidei some influence over the hemorrhagic effusions in hemophilia. The claim, however, is based on only a single case which had for years previously proved recalcitrant to orthodox measures.

Dr. Macalister, of Liverpool, calls attention to the fact that cases of pneumonic consolidation, running an indolent course, will often resolve immediately after exploratory puncture with an aspirator needle. This observation has been confirmed by others, but it cannot be said that any satisfactory explanation of the curious feature is forthcoming.

Dr. Godson, of Manchester, has attempted to elicit by a widely circulated inquiry what drugs are most in favor in the treatment of the paroxysmal stage of whooping-cough. Creosote is the only drug over which there can be said to be the semblance of therapeutic enthusiasm. Constant inhalation appears to be more effective than intermittent inhalation, and it is free from all risk unless the lungs are filled with moist sounds; the simplest and best method is to sprinkle the drug on a cloth and hang it in the sick room. Creosote, however, is mainly used as an adjuvant only to antispasmodic drugs.

At the Medico-Psychological Association of Great Britain and Ireland, Savage read an interesting paper on the "Use and Abuse of Travel in the Treatment of Mental Diseases." Where slight emotional causes had produced slight emotional disorders he held that travel is good, while it is mostly bad in the confirmed and serious cases of mental disorder. Travel, too, is often beneficial in cases of convalescence. In severe hypochondriasis and melancholia the risk of suicide is greatly increased. Sufferers from delusional insanity should not be sent on voyages, as every very fresh impression is liable to give rise to fresh suspicion. Sea voyages are only suitable to a small number of persons, and railway journeys are harmful to all.

ROME LETTER.

By J. J. Eyre, M.D.

During the past malarial season in Italy many Italian scientists, including Professor Celli and Professor Grassi, have been continuing their researches, which were first begun in 1899, on the epidemiology and prophylaxis of malarial fevers. Recently Professor Celli has published a summary account of his researches, to which I am indebted for the following particulars.

Almost immediately after the new theory on the propagation of malaria by means of the Anopheles mosquitoes was experimentally proved, Professor Celli in his lectures given at the Institute of Hygiene, Rome, in May and June, 1899, and soon after in his book entitled "Malaria According to the New Researches," described the new epidemiology, and the new prophylaxis which arose from it, and which to be complete must be

directed (1) against the infective causes, either endeavoring to destroy them (disinfection of malarial blood, destruction of the mosquitoes), or to prevent their penetration into our organism (protection of habitations and of the uncovered parts of the body); (2) against the predisposing causes (organic, physical, social). The struggle against these indirect predisposing causes of the epidemic being very arduous, the author began, early in 1899, to put in practice the new prophylaxis against the direct causes of the epidemic—that is, the causes of infection.

Professor Celli was then persuaded, and is still persuaded, that a complete and positive prophylaxis by means of the disinfection of the blood by quinine alone, as Koch and others maintain, is not practically possible. He was convinced by his and Casagrandi's researches,* that if it were easy *per se* to destroy the mosquitoes in the aquatic or aerial life, it is not equally so on a large scale, especially because there is not material interest to kill these insects so injurious to the life of man, as there is, for instance, to kill those injurious to the life of the grape. And then his first prophylactic experiments of 1899 had the principal object of testing the best means for preventing the bites of mosquitoes, and consequently the penetration of the malarial germs into our organism.

Therefore, on the one hand, he experimented largely with culicifugal ointments, soaps, and odors, and came to the conclusion that even the best of them (turpentine soap, etc.) were of little practical utility; on the other hand, he adopted the mechanical protection of houses and of the exposed parts of the body, while not neglecting the disinfection of the blood by means of the assiduous treatment of the recurrent and primary fevers, and the destruction of the mosquitoes which accidentally entered the houses.

Professor Celli believed it opportune to refer once more to the experiment he made during the estivo-autumnal season of 1899 along the two railway lines, classically malarious, of Prenestina-Cervara and Pontegalera. On the former of these lines he selected for proof five signalmen's houses, and in the latter three. He protected all the windows with linen gauze, which permitted the air and light to pass through, but not the mosquitoes. At the top of the staircase, better to protect the bedrooms, he also put a door covered with gauze. He protected the entrance door with wire gauze, and both doors shut automatically. He advised the inmates to keep their windows open at night during the summer, and to remain indoors, if possible, between sunset and sunrise. For the protection of the men employed in night service he recommended the wearing of a cowl similar to that worn by bee-keepers and gloves connected with the sleeves of the coat. The neighboring signalmen's houses and the stations of Cervara and Pontegalera served as control. In one of the five houses above mentioned the inmates were so negligent that the mosquitoes continually got into the rooms, so that twelve out of fourteen were taken ill with the fevers. On the line of control from Cervara to Salone all the twenty-four inmates of the unprotected houses were attacked with malaria. The same happened at the station of Cervara. In the zone of control at Pontegalera two inmates remained immune, owing to immunity consecutive to malaria suffered.

On the contrary, in the protected houses, out of the twenty-four residents, only four were taken ill; these four worked at night on the railway and did not wear the cowl or gloves.

The result of these experiments, which were the first in the malarial world, induced the Adriatic and the Southern Railway Companies to have them repeated on a more extensive scale during the ensuing malarial season. The method employed by Professor Celli in the malarial season of 1900 was that of the preceding year, but wire netting was substituted for the linen gauze. Further, before the door of the houses a kind of porch made of wire gauze was placed; the chimneys were also protected with the same material; and in order more easily to discover the mosquitoes that by accident might enter the rooms, the walls were whitewashed. The treatment of the recurrent fevers in spring, and later of the very few primary fevers, was carefully carried out with large doses of quinine, and completed with tonic doses of iron and arsenic. No preventive treatment was adopted except that of eu-chinin (0.50 to 0.75 centigramme a day) in the night workers of the Adriatic line. The following are the results obtained:

1. *Prenestina-Salone Line.*— Of the fifty-two persons living in the protected houses along this line only two were taken ill with the fevers, namely, a night-watchman on June 15, when the preventive treatment had

*On the Destruction of Mosquitoes. [The writer's translation of this memoir was published in the THERAPEUTIC GAZETTE, vol. xxiii, October 15, 1899.]

not been begun, and on October 15 a woman who did not adopt the necessary precautions. The former patient, in spite of large repeated doses of quinine, had three recurrent attacks with long intervals; nevertheless his malaria had not been contagious to the other seven who lived in the same house. In the remainder of the protected zone fifty persons (twenty-one adults and twenty-nine children) remained exempt from the fevers.

On the other hand, in the unprotected houses, two out of three at the station of Cervara, sixteen out of eighteen along the line between Salone and Lunghezza, six out of ten at the station of Salone (the four who remained healthy frequently went to Rome to sleep), were attacked with malaria. And in the rural houses (unprotected), along the protected line, in the huts of Salone, of 100 peasants all were taken ill; in the farms of Rustica, Cervelletta, Bocca di Leone, and Gottifredi, all, or almost all, have had the fevers.

Therefore, the protected zone remained almost free of malaria in the midst of a region all infested; and for rendering an infested zone healthy, where in 1899 all were attacked with malaria, the extension there of the new prophylaxis was sufficient.

2. *Castelgiubile Line* (from Kil. 7 to 19 inclusive).—Along this line the experiment was eminently successful. The signalmen's houses along the line are of two types, namely, the old and the new: the former, owing to their peculiar construction, could not be properly protected, and were therefore left for control, which had greater importance because the old and the new houses nearly always alternate.

Of the fifty-seven persons inhabiting the protected houses not one was taken ill with malaria, while of the fifty-seven living in the unprotected houses seven only escaped, and they were almost all adults having immunity consecutive to malaria suffered. Of the children, on the other hand, two alone out of the twenty-nine in the unprotected houses remained free from the fevers; while in the protected houses thirty-six out of thirty-six children remained exempt. Professor Celli also made two control experiments. On August 20 the family (husband, wife, and one child) which lived in house No. 16, and always in good health, was removed by reason of service to house No. 17 a short distance away; about a month later the wife and child were taken ill with the fevers. Another family (parents and six children) then went to live in house No. 16, all of whom had been attacked by malaria. They were immediately treated with large and prolonged doses of quinine, followed by the reconstituent treatment. This family perfectly recovered, passing the convalescent stage during the height of the malarious season in a house protected from the Anopheles mosquitoes. One of the children only, in whom the recurrents were very obstinate, was still rather weak about the middle of October. So that along this line the proof of the new prophylaxis has been very decided and eloquent. Of the same personnel subject to the same conditions of life, that portion which Professor Celli had protected remained free from the fevers, while the unprotected portion were almost all affected.

3. *Pontegalera Line.*—Here in the unprotected zone, from house 15 to 19 inclusive, of forty-two inmates all but three had the fevers. In the protected zone, on the contrary, only two out of thirty-six had malaria; and in the successive unprotected section, of ten one only remained healthy. At the unprotected station of Pontegalera, located almost in the center of the protected zone, six out of seven were taken ill; in the first house of the Fiumicino line three out of three; in the neighboring rural homes thirty out of thirty at Chiesola, four out of four in the Casale di Pontegalera, and twelve out of twelve in a house situated between two protected houses.

4. *Anzio Line.*—Here the experimenter protected the two most pestiferous houses at Kil. 25 and 32, with the result that the eight inmates remained healthy; four who had come in a bad state from the Terracina line had remained in perfect health. On the other hand, in the houses from Kil. 18 to 23, thirty-six out of thirty-nine were taken ill; between the two protected houses, nine out of nine; and eight out of ten after the protected house No. 32. Of a gang of six workmen, four were attacked with the fevers; the two who remained healthy lived in one of the protected houses.

5. *Terracina Line.*—In the signalmen's houses along this line, which is terribly malarious, from the station of Frasso to Terracina, thirty persons were protected. Of these two only suffered from primary infection—one, a signalman on night service, who by mistake did not wear a cowl or gloves, and a child who suffered from quartan. In two, who during the previous two years had become cachectic through malaria, the estivo-

autumnal fevers obstinately recurred up till the first week in October, in spite of the quinine treatment. All the others remained free. Here also some of the houses were left unprotected, and in them there were thirty-five cases of fever in thirty-seven persons.

In conclusion, out of 207 individuals subjected in the years 1899 and 1900 to the new prophylaxis against malarial fevers, ten only were taken ill, while living in the most malarious regions of Latium and in the midst of their unprotected associates, who were all, or almost all, attacked with the fevers. In the houses defended against the invasion of the Anopheles mosquitoes malaria lost its power of contagion, and no longer gave rise to domestic epidemics. Even the cure and convalescence of malarial fevers can take place as well in houses protected from the invasion of mosquitoes as in the most healthy places.

Finally, Professor Celli states that the foregoing favorable results were obtained with the greatest simplicity, especially by means of persuasion, some small reward, his own vigilance and that of two railway employees who assisted him.

Notes and Queries.

NEWS ITEMS CONCERNING THIRD PAN-AMERICAN MEDICAL CONGRESS.

The Organization Committee has postponed the meeting of the Third Pan-American Medical Congress until February 4. It will be held from that date until the 7th inclusive. All literature pertaining to the Congress is in Spanish, but occasional news items will be sent to the weekly journals.

Delegates can go either by the land routes, which are all via Florida, or by the water route from New York. Full particulars concerning these routes, excepting that of the Ward Line steamer from New York, will be found in the *Journal of the American Medical Association* of November 3, 1900.* Those coming from south of Washington and west of Pittsburg will probably select the Florida route, while those from the northeast will find the Ward Line more convenient. The steamer *Seguranza* of the Ward Line leaves New York January 30, arriving in Cuba February 3, the day before the beginning of the Congress. The new Ward Line steamer *Morro Castle*, holding 135 cabin passengers, leaves Havana on February 9, reaching New York February 11. The round trip, everything included, is $60. Any one going via this route will be absent from New York twelve days.

Any of the delegates going down by the Ward Line who may desire it, may by a supplementary payment of $25 return via Santiago. This trip will take from ten to twelve days, during which time the passengers live on the ship and have their meals there if they desire. The party goes from Havana by rail to Cienfuegos in one afternoon, there taking the steamer to Santiago, and from Santiago to Nassau in the Bahamas, and from Nassau to New York. The stay in these different ports will be for a day or more.

English-speaking members of the Cuban Reception Committee will meet all steamers on their arrival in Havana and escort the delegates to the hotels assigned to them. The best hotels in Havana are: Telegrafo, Mascotte, Inglaterra, and Pasaje; rates, $3 to $5 a day.

The Entertainment Committee, appointed by the City Council of Havana, for the purpose of making it pleasant for the delegates during their stay, have arranged a programme, which although as yet not fully determined upon in every detail, is nevertheless one which adds an attractive feature to the meeting.

There will be a large ball given at the Tacon theater. This will be under the management of a subcommittee and an auxiliary ladies' committee. The committee is sparing no pains to make the ball the great social feature of the week, and one that will be most enjoyable, not only to the delegates, but also to any ladies in their parties. (There will be a banquet given at the same place.) On another day an excursion will be made to the sugar plantation of Mr. La Coste near Havana on three government transports. On arriving there the delegates will be shown the manner of growing sugar-cane, gathering it, grinding, cooking, and refining the sugar derived therefrom, as well as all other points of interest connected with the method of making sugar, and life on a sugar estate. Refreshments will then be served either on the estate, or on the transports returning. These transports will be so arranged for the guests as to give the greatest amount of comfort and pleasure during the trip. On another day there will be a parade of the police and an exhibition of the fire companies, in which they will show the

promptness and skill with which they combat any fires taking place in the city. Receptions will also be given by various officials, and private dinners by numerous Cuban physicians to the delegates with whom they are acquainted.

The three general sessions of the Congress, at which papers of general interest will be presented, and addresses delivered by official representatives from the different countries, will be held at the Tacon theater in Havana. The section meetings will be held in the University on the first floor, and on the first and second floors of the Institute. The delegates from Mexico are at present in the lead, and a large number of abstracts have been received from them.

Mention will here be made of the names of the presidents of the different sections, all Cubans, as the presidents are representatives of the country in which the Congress takes place, and the secretaries for the United States. All communications and titles of papers should be sent to the United States secretary of the section covering the subject, or to the associate secretary for the United States of the Congress, Dr. Ramon Guiteras, 75 W. 55th Street, New York, N. Y. A preliminary programme will be published shortly.

The officers of the different sections are:

General Medicine—Dr. Carlos Finlay, president; Dr. Judson Daland, 317 S. 18th Street, Philadelphia, Pa, secretary.

General Surgery—Dr. Tomas Plascencia, president; Dr. W. P. Nicholson, Atlanta, Ga., secretary.

Military Medicine and Surgery—Dr. Eugene Sancho Agramonte, president; Maj. Jefferson Kean, U. S. A., Quemados, Cuba, secretary.

Obstetrics—Dr. Eusebio Hernandez, president; Dr. Gustav Zinke, 13 Garfield Place, Cincinnati, O., secretary.

Physiology—Dr. M. Sanchez Toledo, president; Dr. A. P. Brubaker, 105 W. 34th Street, Philadelphia, Pa., secretary.

Pediatrics—Dr. Joaquin L. Duenas, president; Dr. I. N. Love, 49 W. 44th Street, New York, N. Y., secretary.

Ophthalmology—Dr. Enrique Lopez, president; Dr. John E. Weeks, 40 E. 57th Street, New York, N. Y., secretary.

Gynecology and Abdominal Surgery—Dr. Gabriel Casusa, president; Dr. H. P. Newman, 103 State Street, Chicago, Ill., secretary.

Therapeutics—Dr. Raimundo Castro, president; Dr. Hobart A. Hare, 222 S. 15th Street, Philadelphia, Pa., secretary.

Pathology—Dr. Raimundo Castro, president; Dr. A. E. Thayer, 352 W. 117th Street, New York, N. Y., secretary.

Anatomy—Dr. Federico Horsmen, president; Dr. A. D. Bevan, 100 State Street, Chicago, Ill., secretary.

Laryngology and Rhinology—Dr. Carlos Desvernine, president; Dr. G. H. Makuen, 1419 Walnut Street, Philadelphia, Pa., secretary.

Otology—Dr. Carlos Desvernine, president; Dr. J. F. McKernon, 62 W. 52d Street, New York, N. Y., secretary.

Dermatology and Syphilography—Dr. H. Robelin, president; Dr. A. Ravogli, 5 Garfield Place, Cincinnati, O., secretary.

General Hygiene and Demography—Dr. Vicente de la Guardia, president; Dr. Alvah H. Doty, Quarantine Station, Staten Island, N. Y., secretary.

Marine Hygiene and Quarantine—Dr. Luis Cowley, president; Dr. H. M. Woodward, Surgeon M. H. S., Washington, D. C., secretary.

Orthopedic Surgery—Dr. Tomas Plascencia, president; Dr. John Ridlon, 103 State Street, Chicago, Ill., secretary.

Mental and Nervous Diseases—Dr. Gustavo Lopez, president; Dr. Chas. P. Hughes, 3857 Olive Street, St. Louis, Mo., secretary.

Dental and Buccal Surgery—Dr. Erastus Wilson, president; Dr. Eugene Talbot, Columbus Memorial Building, Chicago, Ill., secretary.

Medical Jurisprudence—Dr. Jose M. Cespedes, president; Dr. H. A. West, Galveston, Tex, secretary.

Medical Pedagogy—Dr. Manuel Delfin, president; Dr. Otis K. Newell, 13 Central Park West, New York, N. Y., secretary.

Railway Surgery—Dr. Tomas Plascencia, president; Dr. Duncan Eve, 700 Church Street, Nashville, Tenn., secretary.

THE PRODUCTION OF ANESTHESIA BY INTRASPINAL INJECTION.

In the December issue of the THERAPEUTIC GAZETTE we mentioned this method of producing surgical anesthesia in an editorial bearing the above title. Further investigation in the employment of this process indicates that it is much better to use the space between the last two lumbar vertebræ, as in this way there is no danger of injuring the spinal cord.

—THE—

Therapeutic Gazette.

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THE TREATMENT OF CARCINOMA OF THE LOWER LIP.

BY JOHN CHALMERS DA COSTA, M.D.,
Professor of Principles of Surgery and of Clinical Surgery, Jefferson Medical College.

Cancer of the lower lip is a very common growth, whereas, as is well known and seems peculiar, primary cancer of the upper lip is rarely met with. Cancer of the lower lip occasionally takes origin from the mucous surface, but most frequently from or near the line of junction of the skin and mucous membrane. It may arise from about the middle of the upper border of the lip, but more usually starts somewhere between the middle and either angle. Only in rare cases does it begin at the angle, although the angle frequently and the upper lip occasionally become involved, as the growth advances.

The disease is far more common among men than among women; the proportion, according to König, being 20 to 1. It is particularly common in men whose work forces them to be exposed to all the inclemencies of the weather; for instance, fishermen, street workmen, teamsters, farmers, motormen, and sailors. It is generally agreed that smoking is often an exciting cause.

Some maintain that tobacco is causative by directly exciting and maintaining irritation, but it is noteworthy that cigar smokers do not suffer so frequently as pipe smokers, particularly the smokers of short-stemmed clay pipes. The short stem of a clay pipe grows hot when the lighted pipe is energetically pulled upon. It becomes dry and tends to adhere to the lip, and when it is removed a portion of the protective epithelium is pulled off and the lip is made sore. Most habitual smokers invariably hold the pipe in the same place, and hence the epithelium of one region may be abraded scores and hundreds of times, until the area becomes chronically irritated and finally cancerous. In this country most men smoke, very many workmen smoke clay pipes, and outdoor workmen often smoke while they work. A man who smokes while he performs manual labor holds the pipe in his mouth for considerable periods without removing it, and when he does remove it, it is liable to be adherent. The frequency of cancer among men, and particularly among outdoor workers, may thus be partially explained, the irritation, be it observed, being due to the hot stem rather than to the tobacco.

It has often been asserted that tobacco itself is really a cause, the assertion being largely founded upon the fact that cancer of the lip is so rare among females in countries in which it is not customary for women to smoke. It is stated, however, that cancer of the lip is no more common among females in countries in which women do smoke. It has been alleged that the disease was common even before the discovery of America — in other words, was common in Europe before Europeans had begun to smoke. Those who believe that tobacco is a cause point to the alleged fact that cancer of the lip is more common among the female peasants in Ireland than among a like class in England, and give as a reason that the Irish peasant women often smoke. Warren saw four cases in women, and three of these patients were smokers. It is probable that tobacco as an irritant to the mucous membrane has often some influence in producing disease, but the intensity of the influence depends largely upon the way in which the tobacco is used.

Another assigned cause for the frequency of the condition in males is careless shaving, but we should note that cancer of the lip is frequently seen in those with beards. Occasionally a cancer arises from a papilloma, an area of eczema, a spot of herpes, the margin of a scar, and not infrequently from a neglected irritation, ulcer, or fissure. The fact that this latter mode of origin is not infrequently noted should make us very careful in managing a chronic ulcer or fissure of the lip. The ordinary small ulcer or fissure will usually heal after the application of simple remedies; if it does not, it should be touched with nitrate of silver; and if this application fails to cure, it should be excised, the wound being sutured carefully and the excised tissue being examined microscopically in order to determine whether or not cancer has begun.

An ulcer or a fissure with a hard edge should always excite anxiety, and ought always to be excised, if not due to syphilis.

Cancer of the lip is uncommon before the age of forty, although it is occasionally met with during the thirties. It is most common between the ages of fifty and sixty. Although the disease is rare in people under forty years of age, when it does appear in a younger person it is always more malignant than is the disease in an older person. As a rule, the older the individual, the less malignant is the growth; the younger the victim, the more malignant is the growth.

A carcinoma of the lip in an individual over forty is ordinarily, as Broca shows, more malignant than a cancer of the skin, and less malignant than a cancer of the tongue. We may add to this the observation that the growths of least malignancy start at the skin margin, and the growths of greatest malignancy are apt to arise distinctly from the epithelial surface. The further inward on the epithelial surface the growth begins, the more malignant it is, as a rule.

The cancer may first appear as a fissure with hard edges, which declines to heal; as a slowly developing ulcer with hard edges, which refuses to cicatrize; as a hard papule in the mucous membrane, which does not ulcerate for a considerable time; or as an eczematous-looking surface, which weeps and crusts, and is covered with papillomatous projections. The first three forms spread deeply under the epithelium and involve the muscle of the lip comparatively early; the last mentioned form is superficial and does not involve the muscle until late. The first three forms are more malignant than the last form, although the papule may remain inactive or latent for a considerable length of time. The sooner the muscle of the lip is involved, the more malignant is the growth. Whenever there is involvement of muscle, there is rapid dissemination of cancer cells,

the dispersal being brought about by muscular contractions. It is the more rapid involvement of the muscle which makes cancer of the tongue so much more malignant than cancer of the lip (Cheyne), and which makes cancer of the mucous surface more malignant than cancer of the skin edge; and it is the late involvement or the total absence of involvement of the muscle in cancer of the skin of the face that makes this growth so much more benign than cancer of the lip or tongue (W. Watson Cheyne).

In whatever form cancer starts, even if it is not ulcerated from the beginning, it sooner or later ulcerates, and the characteristic epitheliomatous ulcer forms. In its earliest stages this ulcer is apt to be concealed by a crust; and if the crust is picked off, the raw surface is exposed. Patients have a habit of picking at this crust, and constantly irritating the area of malignant disease. The typical epitheliomatous ulcer has raised, indurated, everted, and uneven edges, and the base is hard, irregular, and sloughy. When such an ulcer is squeezed, it is often possible to express from it worm-like masses of atheromatous material. The discharge of an epitheliomatous ulcer is thin, reddish sero-pus, which is irritating to the surrounding healthy skin and mucous membrane. The discharge is what is known as sanious pus, and very frequently it is also putrid—what is called ichorous pus. In many cases the floor of the epitheliomatous ulcer is on a much lower level than that of the adjacent healthy skin; but in some cases in which growth exceeds destruction, great epitheliomatous masses form, which elevate the raw surface above the level of the surrounding skin.

The application of caustics to an epitheliomatous ulcer usually causes it to spread with great rapidity. Carcinoma of the lip spreads laterally and also toward the muscle of the lip. A line of induration advances, and ulceration follows induration. This line of induration is under the mucous membrane. In advanced cases the ulcer destroys the entire lip, and involves the floor of the mouth, the lower jaw, and the neck. When the lip is destroyed, the saliva is not retained, and it constantly dribbles down the chin, mixed with the putrid discharges of the ulcer, causing inflammation of the skin over which it flows.

The anatomically related lymph glands are quickly involved, in cancer of the lip. The rapidity of the involvement varies with the malignancy of the case, but certainly in many cases the glands are involved ten or twelve weeks after the beginning of the growth. At first they enlarge slowly, so that they are involved long before they have enlarged sufficiently to be palpated. The mere fact that enlarged glands cannot be detected by palpation is not a proof that glandular disease is absent. When the glands have once enlarged appreciably, they continue to enlarge very rapidly. Adjacent structures are infiltrated, the skin becomes purple and thin and finally ulcerates, the patient suffers great pain, and hemorrhage—even fatal hemorrhage—is liable to occur.

In attempting to estimate whether the glands are enlarged or not, unless the enlargement is gross and obvious the surgeon should feel for it by placing one finger within the mouth and making counter-pressure with the fingers of the other hand beneath the jaw. A curious fact about carcinoma of the lip is that even when there is extensive glandular involvement, metastasis to distant parts is unusual.

The duration of cancer of the lip, if unoperated upon, has been variously estimated. König estimates it at from one to four years; the elder Senn, at from three to five years. The average duration is probably about three years. In forming an estimate of the probable duration of the cases, we must note the patient's age, remembering that the most malignant form occurs in the young; we must observe the nature of the growth, remembering that some cases grow more rapidly and are more malignant than others; and we must note the situation of the growth, remembering that the more it is to the interior of the mouth, the more malignant it is.

Cancer of the lip, if it produces death, does so either by bronchopneumonia, due to the inhalation of septic material; exhaustion; or hemorrhage; and very rarely from metastasis. The number cured by a thorough and radical operation is variously estimated at from forty to sixty per cent, taking the three-year limit as a just one, and considering patients as cured who have gone three years after an operation without recurrence. In fact, eighty per cent of all recurrences take place within the first year after operation.

When the tumor is removed before there is obvious glandular enlargement, the prognosis is excellent; when there is slight glandular involvement, it is fair; but when there is extensive glandular involvement, it is well-nigh hopeless.

In making a diagnosis of cancer of the lip,

we must exclude simple ulcer, tubercular ulcer, syphilitic conditions, and actinomycosis. It is often impossible to make a diagnosis between a simple ulcer which refuses to heal, and the earliest stage of a carcinoma. In a doubtful case, as before stated, it is our duty to extirpate a suspicious sore about the lip, and then obtain an accurate diagnosis by the use of the microscope. Tuberculosis may attack the lip, either as lupus or as the ordinary tubercular ulcer. Lupus in nowise resembles carcinoma, and occurs especially in the young; and tubercular ulcer occurs particularly in the young, has thin and undermined edges which are not indurated, a floor covered with edematous granulations, and edges which are usually surrounded by a zone of purplish discoloration. Carcinoma, it will be remembered, contains no real granulations.

The lesion of secondary syphilis cannot be mistaken for cancer. Lesions of the lip occurring during secondary syphilis are secondary to lesions of the cheeks, are associated with other and obvious syphilitic phenomena, and are cured by antisyphilitic treatment. Tertiary lesions of the lip may cause a general thickening of an extensive area of the lip, which in nowise resembles carcinoma; or may cause the formation of a gumma, which is different in every particular from cancerous disease. A chancre of the lip may be confused with an epithelioma, and it is necessary always to bear in mind the possibility of the confusion. The initial lesion is more common in the female, whereas carcinoma of the lip is infinitely more common in the male sex. The initial lesion is particularly prone to appear on the upper lip, whereas carcinoma of the upper lip is very rare, the disease being far more usual on the lower lip. The initial lesion can appear in a person of any age, whereas the carcinoma is not frequently met with before the age of forty. The ulcer of carcinoma is irregular, with hard, everted edges and a foul and sloughy base. The ulcer of the initial lesion is small and regular, the hard edges are distinctly circumscribed from the surrounding tissues, and the ulcer is usually smooth and glazed. Whereas it occasionally happens in carcinoma that induration precedes ulceration for a considerable period, this is almost the invariable rule in the initial lesion. Commonly in carcinoma ulceration comes first, and then comes induration; commonly in the initial lesion induration comes first, and then comes ulceration. An initial lesion develops much more rapidly than does a malignant growth—the glands beneath the jaw are implicated almost as soon as the initial lesion begins; but in carcinoma the glands are not *obviously* implicated for a number of months. Then, again, the initial lesion will be followed by distinct secondary symptoms and the condition will pass away during the administration of mercury.

TREATMENT.

The only proper treatment for cancer of the lip is radical extirpation at the earliest possible moment, associated with removal of the anatomically related lymphatic glands. It is quite true that arsenic is frequently used in these cases. We admit that some cases have been cured by its use, but we consider that this treatment is absolutely improper, because it entirely neglects the associated lymphatic glands. Whereas some cases have recovered after the local application of arsenic, a very large number of cases must have perished because the adjacent glands were not removed. The treatment is more painful, produces greater disfigurement, is just as dangerous, and is of infinitely less value than is operation by the knife.

In every operation the surgeon must aim at radical removal, and in the majority of cases it is perfectly useless to take away the lip and leave the anatomically related glands. A surgeon would not think of taking away a cancer of the breast without removing the axillary glands; yet it is not uncommon, even at the present day, for a cancer of the lip to be removed, and the submental and submaxillary glands to be left untouched. Dowd points out that there are two possible reasons for this negligent surgery: (1) Many cases are known to have gotten well after simple excision of the growth, without removal of the glands; and (2) there is a general faith that diseased glands are always appreciable by palpation. But, as Dowd well says, although many patients from whom the lymph nodes are not removed do recover, many others die because they are not removed; and he quotes Fricke's statements to prove that lymphatic involvement is often present when the primary growth is no larger than a hazelnut. In one of the reported cases the involvement of the glands existed when the ulcer on the lip was only six weeks old. In fact, the surgeon should assume that the glands are diseased in every case, for they are infected early and long before they can be palpated;

hence, in every case of operation he must not be content with simply removing the growth, but must remove at least the submental and submaxillary lymph glands. Some surgeons advocate making an exploratory incision to see whether the glands are enlarged, but I have demonstrated in several cases that though no enlarged glands could be palpated after making an incision beneath the jaw, yet when the areolar tissue and glandular structures from beneath the jaw were removed, microscopic examination showed that they were involved. It is safer in all cases to remove the glands and fat whether they seem to be enlarged or not, just as we remove the glands and fat from the axilla in every case of cancer of the breast, even if the enlargement is not obvious before opening the axilla, and even if it is not detected after the axilla has been opened.

The growth on the lip must be completely removed. In order to accomplish this satisfactorily, the incision must go at least one-fourth of an inch wide of detectable induration.

The lip can be removed by a V-shaped incision, by a quadrilateral incision, or by a semilunar cut; and the incision must be prolonged below the chin, or else separate incisions must be made below the chin. In a growth which is simply on the margin of the lip, which is superficial, and which spreads laterally, the upper border of the lip may be removed by a semilunar incision, the mucous membrane being sutured subsequently to the skin. As Senn says, "the lip which remains is long enough to retain the secretions, and a new prolabium forms."

Frequently this operation can be performed under local anesthesia, the glands being extirpated a week or two later. In a small and recent growth on the margin of the lip he old V-shaped incision may be used. It is not suitable if the growth is extensive, because when a large portion of the lip has been removed by a V-shaped incision, the resulting lip is so small as to greatly lessen the size of the mouth, pucker the upper lip, and interfere with talking and eating.

If the triangular incision has been employed pass the sutures of silkworm-gut, including all the tissue from the skin surface and just below the mucous membrane, but do not tie them at once. Suture the mucous membrane with catgut and tie these sutures, thus preventing tags of mucous membrane from getting between the wound edges and hindering union. After the sutures on the mucous surface have been tied, the other sutures are tightened. This operation can often be performed under local anesthesia, the glands being removed at a later operation.

If either of the above methods is selected, separate incisions must be made beneath the jaw on each side to remove the glands. This second step can be carried out at once, after the lip wound has been sutured, or, if considered advisable, may be postponed for a few days or for a week or two. It is better, if possible, to remove the primary growth and the glands at one sitting, unless the condition of the patient forbids it.

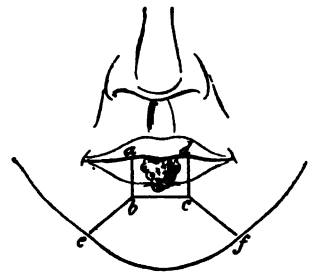

FIG. 1.—Grant's operation for carcinoma of the lip.

The operation I perform for carcinoma of the lip is that of W. W. Grant (*Medical Record*, May 27, 1899). The incisions are shown in the cut (Fig. 1), and the lower incision on each side is prolonged into the neck, in order to enable us to reach the glands. Figs. 1 and 2 show the lines of the incision

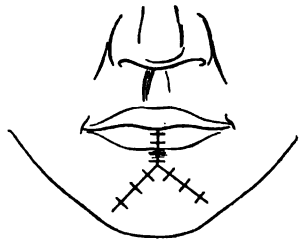

FIG. 2.—Grant's operation for carcinoma of the lip.

and the method of suturing. Dowd, in a recent article, has clearly described how to remove these glands. He says that three localities should be examined for nodules below the jaw: (1) Above the anterior part of the submaxillary salivary gland; (2) the space between the anterior bellies of the two digastric muscles; and (3) beneath the border of the jaw in the region about the posterior portion of the submaxillary salivary gland. If the submaxillary lymph glands are ob-

viously diseased, he then explores along the internal jugular vein. The rule which we follow is to clear the three first mentioned regions of fat and glands, whether enlarged glands can be palpated or not, and if we find obvious disease of the submaxillary lymph glands, to then also remove the glands from along the internal jugular vein. In carrying out the operation the mylohyoid muscle should be retracted forward, and the margins of the wound held apart laterally; as Dowd shows, the submaxillary gland will then come into view and it may be drawn down, so as to expose its anterior and upper surface, and the lymph glands above it may be extirpated. It is probably best to remove the submaxillary salivary glands because these glands contain lymphatics and are liable to be infected. By retracting the posterior portions of the wound, the glands about the border of the jaw can be removed, and by retracting the anterior portions of the wound, the glands beneath the chin can be found and extirpated. The clearing out of these triangles is absolutely essential in every properly performed operation for cancer of the lip. Unfortunately it is difficult or impossible to remove the suspected tissues in one piece without also taking away muscular structure.

Just as we regard the axilla as infected in every case of cancer of the breast, so we must regard the glands of the neck as infected in every case of cancer of the lip.

When the lip is extensively involved, it must be entirely removed; and a new lip constructed either from the cheeks, from the upper lip, or from the tissues beneath the jaw. There is sometimes trouble for a few days after the operation in holding the new lip in place. It should be sutured to the periosteum, or temporarily sutured to a part of the upper lip, which has been made raw to receive it; or the lip may be nailed to the bone, as was practiced in one case by Dr. George W. Spencer.

When the glands are extensively involved operation is hopeless—or well-nigh hopeless; and when the jaw-bone and the floor of the mouth are involved with the glands, operation is absolutely useless. I have performed several very formidable operations in these cases, in attempting to save life, in two cases having removed the lower jaw and the floor of the mouth; but I have come to the conclusion that such attempts are futile.

Finally, we may thus sum up the important injunctions to be inculcated regarding the surgery of cancer of the lip: Extirpate every sore which does not heal, particularly if it has a hard edge; operate as early as possible after cancer begins; operate radically; and always remove the anatomically related lymph glands and the submaxillary glands.

THE TREATMENT OF CHRONIC SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.

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In contributing a brief article on the treatment of suppurative diseases of the tympanic cavity, I will confine my remarks to a consideration of the chronic, non-operative variety. We should bear in mind the important fact that a great majority of chronic discharging ears are the direct result of neglect or inefficient treatment of the acute form. If an acute tympanic inflammation is promptly recognized and carefully treated it should not pass beyond the hyperemic or primary exudative stage. An exception to this general rule must, however, be noted in the case of an acute inflammation occurring during the course of one of the exanthemata, or complicating an attack of influenza. But even in infectious cases of this character an early and free incision of the membrana tympani allows the secretions to escape, and usually prevents the discharge from becoming chronic, by providing efficient drainage.

The diagnosis of this aural disease is usually so self-evident that but little experience is required for its prompt recognition; and yet the character of the discharge, the size and situation of the opening in the membrana tympani, the presence of pain or a rise of temperature, are all weighty factors in the general consideration and prognosis of a case of chronic otorrhea.

A discharge of a ropy, mucoid character indicates that the Eustachian tube is chiefly involved, which by the consequent swelling of its mucous lining prevents this thickened secretion from escaping into the nasopharynx. Some disease or growth in the postnasal space is usually responsible for a discharge of this character. A copious discharge, creamy in character, indicates an involvement of the mastoid cells. This should be distinguished from the less abundant yellowish pus present when the tympanic cavity alone is the site of disease. The appearance of blood in chronic cases always indicates the presence of granu-

lation tissue, which in turn is usually an outgrowth from carious bone. A discharge, not so profuse, brownish-yellow or greenish-brown in character, having a decidedly offensive odor, indicates extensive bone decay, involving frequently the tympanic attic and mastoid antrum.

Perforations may be situated in any part of the membrana tympani. They may be multiple or single. The entire membrane may be destroyed, and disintegration of the ossicles frequently follows. In uncomplicated cases the perforation is usually situated in the inferior part of the membrana tympani (membrana tensa). An opening in this situation, when of fair size, provides for ample drainage, a factor of much importance from a prognostic point of view.

A perforation situated in the upper part of the membrana tympani, especially the superior posterior quadrant (Shrapnell's membrane), is usually large in size, the ossicles and surrounding bony structures are liable to undergo necrotic changes, the deafness increases to a marked degree, and the discharge obstinately resists almost every therapeutic measure directed to its relief. In addition to this there is present a constant proneness to mastoid and brain complications, and to sinus thrombosis.

Surgical interference is necessary in most cases of this character whenever such manifestations become evident, and an operation on the middle ear, or the mastoid, or on both, should be performed in the early stages, even though the symptoms do not appear to demand such radical measures. The principal danger in such cases lies, therefore, not in the operation itself, but rather in its neglect. Many serious complications involving the mastoid process or the interior of the skull can be averted by an early operation within the cavity of the middle ear; and, likewise, many lives may be saved by a timely opening of the mastoid.

There is a class of chronic suppurative cases that should always make us apprehensive. I refer to those recurrent cases giving a history of repeated attacks of pain, and relieved only when discharge appears. It seems unfortunate that cases of this type do not suffer enough severe pain to compel them to seek relief. A continuation of these slow necrotic ravages is sure in time to produce disastrous results, even though the destructive changes are sluggish, and often free from all symptoms save the brief periodic attacks of pain.

Before instituting treatment in any given case, a thorough examination of the ear should be made, in order that a correct diagnosis may be established. It is further advisable to examine the mastoid process in all cases of chronic suppuration. Firm pressure may elicit an area of tenderness over the mastoid when no implication has been suspected. It is well to bear in mind the distinction between tenderness or swelling over the mastoid caused by a furuncle of the external auditory canal, and that resulting from a true mastoid disease. An examination of the canal should promptly establish the differential diagnosis.

After the ear has been syringed with an antiseptic solution, the canal should be carefully dried with cotton twisted on an applicator; then with reflected light and an aural speculum the external canal, membrana tympani, and middle-ear cavity (when the membrane is ruptured), should be examined. Care should be taken to note the character of the discharge, the situation, size, and number of perforations, and the presence or absence of granulation tissue or polypoid growths.

Definite information should further be obtained as to the presence and extent of necrotic changes; also whether there is bulging or drooping of the superior and posterior portion of the external auditory canal, indicating involvement of the mastoid. In some cases of long standing, an absence of both membrana tympani and ossicles will be observed.

Of all measures to be employed for the treatment of a discharging ear, that of cleanliness stands first in importance. Indeed, failure to carry this simple measure into execution has been the cause of much chagrin and disappointment to both physician and patient. There seems to be a general inclination on the part of patients to become very lax in this respect, but unless its utility is fully appreciated, failure is sure to result. Where the secretions are tenacious, or have become dried and adherent to the canal or tympanic cavity, they can be readily removed by instilling, for a few minutes, some hydrogen peroxide, followed by irrigation of the canal, after which a good view of the parts can usually be obtained. With the single exception, perhaps, of hydrogen peroxide, *all* solutions should be warmed before being used in the ear.

When the perforation is situated in the inferior part of the membrane, and is of

goodly size, ample provision has been made by nature for proper drainage. If, however, the perforation is central, or even higher, it is better to enlarge the opening by a free incision down to the floor of the canal; otherwise the pus must accumulate within the tympanic cavity until it reaches the heighth of the perforation and escapes by overflow. This is very undesirable, because it is doubtful whether cases of high perforation, *per se*, can be effectually cleansed, and as pus confined in the middle-ear cavity rapidly undergoes decomposition, we would be confronted with a case of perpetual auto-infection, which would tend to preclude all possibility of recovery.

The following line of treatment will be applicable to all simple, uncomplicated cases of suppuration. The ear should first be syringed, followed by the cleaning out of all secretions from the Eustachian tube by means of Politzer's inflation of the middle ear, or by Siegle's pneumatic speculum. In cases of more or less occlusion of the tube, it sometimes becomes necessary to resort to the Eustachian catheter or bougie. In the hands of those familiar with their use these appliances are most valuable, but great caution should be observed by all others.

After the ear has been carefully dried, the head should rest on a table, with the affected ear uppermost, and a few drops of a solution of silver nitrate (gr. j to iij to the ounce) instilled into the canal. It is desirable that the solution should pass through the Eustachian tube into the nasopharynx. When the tube is quite patulous this can be accomplished by directing the patient to open and close the mouth several times, or by the act of repeated swallowing. When this simple procedure does not succeed, it can usually be accomplished by exerting slight force with Siegle's pneumatic speculum, or in the following manner: Grasp the auricle and with traction draw it outward and forward; while thus extended, take the thumb of the opposite hand and close the external auditory canal by firm but gentle pressure on the tragus, immediately relaxing the hold on the auricle. This procedure may be repeated if necessary. Of course, this method of treatment should never be entrusted to the patient.

Syringing the ear should be carried out by the patient, once, twice, or thrice daily, being guided by the character and profuseness of the discharge. The instillation of the nitrate of silver drops, or other solutions, should be repeated two or three times in each week. The frequency of both the syringing and use of drops may be gradually lessened, according to the requirements of individual cases. The chief object is cleanliness, which is best accomplished by frequent irrigation and by inflation; and yet we should not use either measure more frequently than necessity demands.

A word of caution about inflation of the middle ear may serve a good purpose. When the case is unilateral much damage can be inflicted on the good ear by the too frequent use of Politzer's method. This may, however, be overcome by directing the patient to recline his head sidewise with the good ear directed downward, and at the same time closing the external auditory canal tightly with the finger; with the head in this position inflation can easily be performed, the chief energy being directed to the ear uppermost. The nasal piece of Politzer's bag must, of course, be introduced into the nostril corresponding to the ear to be inflated. A few drops of chloroform in the bag will facilitate success in its use; moreover, the chloroform vapor exerts a beneficial influence on the mucous lining of the tube and middle ear.

So far I have mentioned the topical application of silver nitrate alone; not that all cases will improve under its use, nor that other medicaments have not their value; and yet there seems to be an almost specific action of this drug, in selected cases. The writer has often seen pain and suppuration cease after one or two applications of this drug in recent, uncomplicated cases.

Solutions of other drugs, such as copper sulphate, lead acetate, and zinc sulphate, may be used in the same strengths as the silver nitrate, but they should not be forced through the Eustachian tube. If it is necessary to employ stronger solutions, these likewise should not be allowed to flow into the Eustachian tube, but should be applied directly to the tympanic cavity by means of a cotton carrier.

Various drugs have been suggested for syringing or irrigating the ear in cases of suppuration. Boracic acid (gr. xv to f ℥ j) is suitable for young children and recent non-infectious cases. The two solutions that will give best results in the majority of cases are bichloride of mercury 1-to-3000 (in children 1-to 5000), and a solution of carbolic acid and glycerin in the proportion of three ounces of the former to one ounce of the latter; one teaspoonful of this mixture should

be added to a pint of warm water, and used with the syringe. The glycerin is added to the carbolic acid for the purpose of making it more miscible in water.

Force should never be employed while using the syringe. In children, and in cases where the tube is dilated, great care is necessary to prevent the bichloride solution from entering the throat by way of the Eustachian tube.

Cases that do not progress favorably under the above treatment should be put on what is known as the dry method of treatment, which, however, is not indicated where the perforations are small. The dry treatment consists (1) in drying the ear after syringing; (2) instillation of the drops as above described; (3) the insufflation or dusting of various powders over the surface of the middle ear; (4) the introduction of a small strip of iodoform gauze into the deep canal; and (5) a pledget of cotton placed external to the gauze to catch the discharge. The cotton can be renewed by the patient as often as required for the purpose of cleanliness.

This method of treatment, to be effective, must be carried out by the physician himself, and repeated as frequently as each individual case may require. Powders should never be packed into the ear, nor used in sufficient quantity to interfere with free drainage. Finely powdered boric acid is an efficient and popular powder; however, a combination of boric acid and iodoform in equal parts, or equal parts of boric acid and zinc oxide, will answer a better purpose in some patients.

The presence of granulation tissue, particularly if in a large quantity, calls for surgical interference; and yet there are many cases that will yield to non-operative treatment. Aside from caustics or the actual cautery, alcohol, on account of its hygroscopic properties, is the best remedy for the destruction of granulation tissue. When a case does not yield to this influence, it is usually better to remove the mass by surgical means. Alcohol dropped into the ear in full strength will cause much pain at first; it should therefore be diluted one-half with glycerin, which also has hygroscopic properties. The strength can gradually be increased as tolerance is established, until the full strength of absolute alcohol is used.

It should always be remembered that a majority of all cases of ear disease are the direct result of some abnormal condition located in the nasopharynx, the correction of which is quite as essential as treatment directed to the relief of the ear lesion. Furthermore, most patients suffering from a chronic suppurative inflammation of the middle ear require some general treatment directed to the relief of existing systemic disturbances. Benefit may also be derived from a change of scene or outdoor life.

THE VALUE OF CONTINUOUS CATHETERIZATION IN SOME GENITO-URINARY AFFECTIONS.

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Drainage of the bladder by means of the retained catheter, a method so highly indorsed by Guyon, has, considering its great value, received but scant recognition at the hands of the profession in this country. This lack of recognition is probably in large part due to the comparative neglect of the subject in surgical text-books; for, with the exception of White and Martin's treatise, where the method is discussed at considerable length, the recent works on genito-urinary surgery have paid but little or no attention to the subject.

That a valuable, easy, and safe method of draining the bladder was being overlooked was forcibly brought to the writer's notice by the highly successful results following its employment in a few cases lately under his care.

Case I.—Mr. K., aged seventy-two, was first seen on the morning of July 12, 1899, suffering with retention of urine of eighteen hours' duration. The retention was acute and complete, no urine whatever passing. Rectal examination revealed a uniformly enlarged prostate, soft, and about the size of a fetal head at seven months. Exciting causes of retention were constipation and a rather free use of beer. Upon taking charge of the case I was informed that several attempts had been made by a physician to introduce a catheter. These efforts had been futile, the instruments used having been filiform bougies and small-caliber metallic catheters, their only result being to cause a profuse and constant hemorrhage from the urethra. Altogether the patient was in a most distressing condition.

The anterior urethra having been washed out with a nitrate of silver solution 1:8000, an attempt was made to pass a Mercier 20-caliber. This failing to enter the bladder a bicoudé catheter was tried, but unsuccessfully, the only result from these manipulations being to increase the hemorrhage from the deep urethra. Resort was now had to the metallic prostatic catheter, with the large Beniqué curve 18-caliber. This easily passed into the bladder, but immediately became choked with blood-clots, no urine being drawn. The clots being finally removed by suction with a syringe, thirty ounces of bloody urine was withdrawn. The catheter was removed, a laxative ordered, and rest in bed enjoined, with the hope that the urine would be voided in the evening spontaneously.

Upon visiting this patient later, he was again found to be suffering from retention. An attempt to pass a soft catheter failed, and was followed by a renewal of the hemorrhage from the deep urethra, several large clots being passed. With some difficulty the metallic catheter was again introduced into the bladder, and after the clots which formed in the instrument were removed, twenty-eight ounces of bloody urine was withdrawn. I now determined to tie the catheter in, thereby securing continuous drainage. This was accordingly done, a rubber drainage-tube being slipped over the end of the instrument, conveying the urine into a large jar beneath the bed. The bladder was washed out daily through the catheter with a solution of nitrate of silver 1:4000; the urine remained bloody for three days, but the bladder never became infected.

At the end of one week it was noticed that urine was beginning to pass continuously along the outside of the catheter. The instrument was now withdrawn, a rectal examination at this time showing a marked reduction in size of the prostate gland, as compared with the condition found at the first visit. No subsequent trouble ensued, the patient voiding his urine easily about five times through the day with no residual urine.

I saw this patient some months ago, one year after the attack just described. He was then urinating six times through the day, and once at night; urine was sterile, one-half ounce residual.

Case II.—Mr. A, aged seventy-eight, had been suffering from enlargement of the prostate for ten years. There had been many attacks of retention temporary in character; he had never resorted to catheter life. When first seen January 2, 1900, he was found to be suffering in a most marked degree, with frequent desire to urinate, much pain over the hypogastric region, and intense vesical tenesmus, about half an ounce of turbid ammoniacal urine being voided every half-hour. The urine was found to contain a large amount of pus and triple phosphates.

Examination per rectum showed that the prostate was very much enlarged, and was hard and fibrous in consistency. An examination of the bladder demonstrated the absence of residual urine. The trigonum vesicæ was very tender; the length of the urethra was twelve inches.

The patient stated that his urine had been cloudy and slightly ammoniacal for several years, but that his condition was always made much more acute by catheterization for retention. The present attack followed the employment of the catheter three days prior to my visit.

The case was evidently one of acute infection of a bladder already the seat of a chronic cystitis. No local treatment was employed in this case for three days, the patient taking internally ten grains of urotropin every three hours, with rectal suppositories of opium and belladonna. At the end of three days, the vesical tenesmus having abated considerably, a Mercier catheter was easily introduced and tied in position, and retained for two weeks, the bladder being washed out daily with nitrate of silver solution.

After removal of the catheter, the patient urinated easily without pain eight times during the day and twice at night. There was three ounces of non-ammoniacal residual urine, containing a large amount of pus. Indeed, so comfortable did the patient feel that he refused to entertain the idea of either a subsequent resort to operative procedure or the regular adoption of catheter life.

Case III.—M. S., aged seventy, admitted June, 1900, to the University Hospital, suffering with enlarged prostate, atony of the bladder, with chronic retention of urine. The patient had been unable to void any urine for several months, and was being catheterized four to five times daily. There was at the time of admission an acute infection of the bladder, the urine drawn by the catheter being full of pus and ammoniacal; there was marked vesical tenesmus, which, on ac-

count of his inability to pass any urine, added greatly to his suffering. The enlargement of the prostate affected mostly the median lobe, the urethra being 11½ inches in length, the growth per rectum being about the size of the closed adult fist.

In this case a soft-rubber catheter was permanently retained in the urethra for five weeks, the bladder being washed daily with silver solution, urotropin being administered internally. After removal of the catheter, the patient was able to pass about eight ounces of urine, with four ounces residual. The prostate had diminished considerably in size, as was shown both by rectal examination and by measurement of the urethra, which at this time was only 10½ inches. On July 31, 1900, I did a Bottini operation upon him, but this was not followed by any further improvement in his condition.

At the present time (November) the patient urinates four times through the day and twice at night. The catheter is used twice daily, and there are four ounces of residual urine.

Case IV.—J. W., aged sixty-three, was admitted to the University Hospital, service of Dr. Edward Martin, October 16, 1900, with complete retention of urine. Patient stated that he had had difficulty in urinating for two years past. He was a heavy drinker, and for three weeks prior to admission to hospital had been unable to pass urine, catheterization being constantly required, on an average of about three times a day. Rectal examination showed an enormous, apparently glandular, prostatic enlargement. The urine was alkaline, purulent, and of low specific gravity.

Before resorting to any operative measures upon the gland it was decided to employ continuous catheterization. This was carried out for two weeks. The bladder and urethra were flushed out daily with protargol solution 1:2000, the catheter being changed for a new one of soft rubber every second day. At the end of this time the catheter was removed and the patient was found to be able to urinate easily, with only one ounce of residual urine. The prostate was considerably diminished in size. At the present time (December) the patient is experiencing no difficulty in urinating.

Case V.—P., admitted into the ward of the University Hospital June 1, 1900, with retention of urine due to the inward pressure produced by a large perineal abscess. The introduction of a catheter caused the rupture of the abscess into the urethra; the retention continued, however, daily catheterization being required. As the patient shortly developed daily rigors, with evening rise of temperature, and at the same time it being noticed that there was forming in the upper part of the scrotum on the left side a large painful swelling with slight fluctuation, I determined that the urethral opening was not sufficient to drain the original abscess. I accordingly made a counter-opening at the middle of the scrotum, evacuating about half an ounce of pus. Upon introducing a probe it was at once seen that the counter-opening communicated with the urethra, the result being a urethral fistula some two inches in length, extending from the inner side of the scrotum down to the membranous urethra.

A catheter was retained in this case for six weeks, at the end of which time the sinus leading to the urethra had entirely healed, as well as the perineal abscess. The patient was likewise voiding urine without any difficulty from three to four times daily.

Case VI.—S W., aged thirty, admitted to the University Hospital June, 1900, with two fistulous openings communicating with the urethra at the peno-scrotal junction. No urine reached the meatus, but it was voided entirely through the fistulas. Examination of the urethra showed a stricture of No. 20 caliber at four inches, directly in front of the inner opening of the fistula. No deeper strictures were discovered.

The patient, not being very intelligent, was unable to give a coherent history of his case, but it was ascertained that the condition followed the spontaneous rupture of an abscess, with subsequent lack of surgical attention.

In this case the fistulas were laid open down to the urethra, the stricture at four inches was cut to No. 28, and a large-caliber soft catheter introduced into the bladder and tied in position. At the end of six weeks of catheter drainage the external wound had entirely healed without any sinus, and a No. 26 sound could be passed easily.

A study of these cases shows the varying clinical conditions in which continuous catheterization will be found most beneficial.

Case I presents an instance of retention of urine complicated with severe hemorrhage in the deep urethra, a most puzzling and alarming situation, as any one must admit who has had much to do with this condition. The result in this case was most gratifying, and as far as I can say of a permanent character.

Cases II and III, while not giving such highly satisfactoy results, at the same time show the great value of this method in dealing with bladders that are the seat of either an acute or chronic infection.

In Cases V and VI the idea of making perineal drainage first entered my mind, but upon further reflection it was determined that it would be impossible to continue perineal drainage long enough to secure healing of the fistulous tracts, without incurring the risk of a perineal fistula. At any rate, the results attained seem to me to be all that could be desired.

Guyon (White and Martin) states that in retention of urine complicated by fever continuous catheterization finds its most useful application; this particularly applies to prostatic subjects. He further states that he employed the permanent catheter in fifty-six prostatics with infected bladders; in thirty-eight of these the cystitis was cured.

It is interesting to note that in Cases I, II, III, and IV, where there was present considerable enlargement of the prostate, rectal examination made after removal of the catheter showed in each case a marked diminution in the size of the gland, a result no doubt brought about by the relief of congestion, produced by the continuous drainage.

Although the number of cases cited is not large, the varied clinical conditions presented by them are sufficient, and the results obtained are satisfactory enough to warrant the writer in strongly advocating a more general adoption of this simple method of bladder drainage prior to resorting to more severe surgical procedures; especially is this urged in all cases of enlarged prostate, prior to the performance of any operation on the gland itself. Case IV illustrates the great value of this procedure in such instances, the patient appearing to have secured as much if not more relief than he could have hoped to attain from prostatectomy.

In the employment of continuous catheterization one important point in the technique must not be overlooked, and that is to see that no part of the catheter is allowed to remain in the bladder itself. The instrument should be very slowly introduced and should be retained permanently at that point at which the first urine begins to flow, the object of this maneuver being to keep the eye of the catheter in the prostatic urethra. Any portion of the instrument remaining for any length of time in the bladder is bound to provoke congestion of the trigonum, hematuria, and vesical tenesmus, conditions which will not only add considerably to the patient's suffering, but will materially add to the danger of bladder infection.

THE MANAGEMENT OF NASAL CATARRH.

By Charles Prevost Grayson, M.D.,
Lecturer on Laryngology and Rhinology, Medical Department, University of Pennsylvania.

The merely local therapeusis of both acute and chronic catarrhal rhinitis is a very simple matter. The physician needs but little special training to enable him to carry this out, if not skilfully, at least quite satisfactorily. In spite of exceptional skill upon the part of the specialist, however, he will have but slight success in the arrest of the catarrhal process in this region if he limits his treatment to merely topical methods. And this is almost equivalent to saying that catarrh is not a strictly local disease. To my own mind it is no more than a symptom of some diathetic disorder or of some persistent disturbance of nutrition. It is quite true that the employment of various cleansing, astringent, and alterative applications is of distinct value in hastening the cure of nasal catarrh, but he who ignores the real disease, of which this is but a local manifestation, will never confer more than a partial and temporary relief upon his patient.

In theorizing upon the pathogenesis of some diseases, the rôle of autotoxemia has, perhaps, been given an undeserved prominence, but in the etiology of simple rhinitis it has yet to be awarded its full share of responsibility. Believing this, I cannot review the most recent methods of treating nasal catarrh without first urging those who still fail to recognize its systemic origin to review their own experience, and to observe whether their previous successes or failures have not been largely influenced by the care or the indifference with which they have treated the economy as a whole.

Whether or not the systemic factor is to be found in a so called diathesis, or in some defective link in the chain of nutritive processes, we may be confident that the primary departure from the path of hygienic rectitude takes place in the gastrointestinal canal. In almost every case this will consist in some disturbance of the close balance that should exist between food and work, or waste and repair. In men, women, and children, in this land of plenty, the consumption of food

is usually out of all proportion to the combustion of tissue. In plain English, we all of us eat too much, and the large majority of those who suffer from catarrhs of the respiratory tract will be found indolent as regards wholesome exercise, soft, and over weight, their complexions not what they should be, and, in all probability, they are constipated.

The oxidation processes in such people are inevitably languid and incomplete, and we have the blood, therefore, tainted with a number of products of suboxidation of which uric acid is the type. The urine is invariably altered more or less both in quantity and quality. It is scanty, high-colored, of high specific gravity, and on standing at a slightly lowered temperature it deposits a bulky sediment of mixed urates or uric acid, or both. Not infrequently, also, we find in it some crystals of oxalate of lime. In a word, these people are the subjects of lithemia, and it is to this general condition, much more than to any local abnormality within the nose itself, that their chronic and their repeated attacks of acute rhinitis are due. In much the larger number of cases, therefore, catarrh is to be regarded as no more than a nasal signal of systemic poisoning.

During the colder seasons of the year, when lessened activity of the skin devolves upon the mucous membranes at times a vicarious function of elimination, we find that catarrh is most aggressive in its symptoms and most resistant to merely local treatment.

If, then, this view of the origin of the catarrhal process be adopted, the conclusion is unavoidable that we can effect its cure only by measures that will restore the digestive tract to a state of sanitary purity, and deny further admission to it of everything that will be apt to favor the renewed production and absorption of toxins.

This somewhat extended reference to the etiology of nasal catarrh will really economize space, by rendering any suggestions concerning general therapeutics quite unnecessary. A knowledge of general medicine will answer this purpose, and we may proceed at once to the local treatment of these affections.

Acute Catarrhal Rhinitis (*Coryza*).—If this disturbance were due solely to an exposure of some kind and a consequent chill, its successful treatment would be a matter easy of accomplishment. The traditional mustard foot-bath, the hot spirituous drink, and the ensuing free diaphoresis would usually arrest it and initiate a rapid convalescence; but the very fact that these measures so very seldom achieve any such result is strong evidence that we have more to deal with than a pure and simple inflammation.

Recognizing the existence of a systemic factor, therefore, and the nature of it, we will discern at once what the nature of our treatment should be. Rapid and thorough elimination will be the keystone of the therapeutic arch. The details of this may vary with each patient, but, granting the necessity for occasional modifications, we may regard as the principal features of this plan of treatment active catharsis, a greatly restricted diet, the most vigorous outdoor and indoor exercise that the patient can take, and a hot bath every night. Aside from the cathartic, internal medication should be limited to the alkalies and the salicylates.

Nothing can be more ill-judged than the routine use of the "rhinitis" and "coryza" tablets that are now having such a vogue. Instead of aiding elimination, their ingredients—opium, belladonna, aconite, etc.—greatly obstruct it, and they are enabled to afford a slight alleviation of the discomfort only at the expense of greatly prolonging the attack.

The *local treatment* will vary somewhat with the stage of the disease. During the period of acute tumefaction of the turbinates and profuse serous rhinorrhea, when there is frequent sneezing and the eyes are flooded with tears, the applications should be as soothing as possible. A few drops of a two-per-cent solution of cocaine may first be sprayed upon the engorged tissues, and, after a minute or two, be followed by one of the alkaline sprays, of which Dobell's solution is the one most widely and favorably known. This having been repeated once or twice and the nose well cleansed, we may conclude the treatment by using in an atomizer a solution of recent introduction which seems destined to become very popular. This is a combination of the extract of the suprarenal capsule with chloretone. It has the advantage of being both stable and non-toxic, and its effect combines the vascular constricting action of the suprarenal extract with the anesthetic action of the chloretone. It has the additional advantage also of being, unlike cocaine, a perfectly safe solution to place in the hands of the patient for home use. If he be instructed to first cleanse the nose and nasopharynx with the Dobell solution and then to follow

it with a spray of this adrenal-chloretone combination, he need endure very little of the discomfort that usually attends an acute coryza.

On the third or fourth day, when the mucous glands again add their secretion to the discharge and the rapid epithelial desquamation gives it a mucopurulent character, the cleansing of the nose may be succeeded by a spray of the distilled extract of hamamelis, one part to three of water. This exerts a mildly astringent action and serves to restrain the rapid loss of the superficial and glandular epithelium.

With care and favoring conditions, a day or two more will bring the attack to that point where the active hyperemia has disappeared and left in its wake a sluggish venous congestion that, if left to itself, is apt to be slow in departing. At this period a gentle stimulant of some kind may supplant the astringent, and a very excellent formula, that seems to be too little known, is "Boulton's solution." This is prepared as follows:

℞ Tr. iodin. comp., f ʒ j;
Acid. carbolic., cryst., gr. xviij;
Glycerini, f ʒ ijss;
Aq. dest., f ʒ ij.

M. Place in water-bath of 100° in tightly corked bottle until colorless. Filter.

It may be used either in spray form or by means of the cotton-tipped applicator. Under its influence the relaxed erectile tissue of the turbinates contracts, the vessel walls regain their tone, and the secretion of the mucous membrane quickly loses its viscid and purulent character.

I may refer here to the rather wide-spread use of oils in the treatment of the catarrhal affections of the nose. These petroleum products probably have very little remedial value in themselves, but it is their convenience as vehicles for other more active agents that explains their popularity. It is to be regretted, however, that their various more or less agreeable combinations with menthol, eucalyptol, thymol, and other such ingredients, have led in many instances to their being substituted altogether for the alkaline cleansing solutions. If they are used at all, it should only be in conjunction with and *after* the Dobell or other similar wash. One of the most generally useful of these oil formulæ is that of Douglas:

℞ Thymol, gr. x;
Menthol, gr. xx;
Eucalyptol, gtt. xx;
Ol. cubebæ, gtt. xl;
Benzoinol, f ʒ vj.
M.

Chronic Hypertrophic Rhinitis.—The most prominent symptom of this disease, the interference with nasal respiration occasioned by the hypertrophy of the turbinates, has led to the commonest blunder in its treatment. It is the unreasoning haste of both physician and patient to get rid of this obstructive overgrowth that leads them to ignore the prolonged catarrhal process that has been responsible for it. Cauterants and operative measures are resorted to much too early in the treatment, and the slow but conservative processes of nature are not permitted the opportunity to assist in the cure.

Immediate destruction rather than gradual resorption of the hyperplasia is too often the foremost thought in the physician's mind, and the patient's eagerness for a wide-open nose frequently induces the former to gratify this demand by sacrificing to it much of the functional value of the organ. The relief afforded by such measures must inevitably be but temporary. The creative catarrhal process is not arrested by the mere removal of one of its effects, and it will be only a question of time when, if it be allowed to continue, there will be a reappearance of the symptom to the relief of which treatment has been exclusively directed.

In the management of these cases, therefore, it will, in the long run, be much more satisfactory to make haste slowly. The patient should be made to comprehend that a pathologic process of many years' standing is not to be overcome in a few days or weeks. If, then, we are successful in establishing a mutual understanding of this kind, we may calmly hold our several destructive agents in reserve until such time as the resistance of the obstructive hyperplasia to gentler measures will justify their use.

In commencing our treatment of these cases, our efforts will first be directed to reducing the activity of the catarrhal inflammation. A careful study of the patient's general condition, and the correction of everything of a systemic nature that may serve to maintain this morbid process, will be absolutely essential. It will be time wasted to limit our study and therapeutics to the nasal chambers alone. When we have sufficiently instructed our patient concerning his general health, we may with a clear conscience devote our energies to the local condition. With the alkaline wash as an invariable preliminary, we may use after it at the first visit or two the hamamelis or the Boulton solutions. Both the superficial hyper-

emia and the hyperesthesia of the mucous membrane having been somewhat reduced by these remedies, it is prepared for something more energetic. In spite of the many substitutes that have been proposed for it, iodine is probably still the most reliable and generally useful medicament that we can employ in these advanced degrees of catarrh. The strength of the following solution may be altered to adapt it to the varying susceptibilities of different mucous membranes, but it will be found suitable for the average case:

℞ Iodin., gr. viij;
Potass. iodid., gr. xxiv;
Glycerini, f ʒ ss.
M.

It is applied by means of the cotton carrier, and until the nose has become somewhat tolerant of it, it had better be limited to the inferior meatus. It should be introduced upon the floor of the nose the full length of the fossa, and swept outward, as it is withdrawn, beneath the lower border of the turbinate. A few repetitions of this upon alternate days will effect considerable reduction of the venous engorgement of the lower turbinates, a normal circulation is reestablished, the absorption processes are stimulated, and that portion of the hyperplasia that has not as yet undergone any great degree of organization will be removed.

The strength of the solution should be gradually increased as the tissues become accustomed and less responsive to it, but when its limit of usefulness seems to have been finally reached, we may find an even more active stimulant in chromic acid. The crystal, fused upon the tip of the applicator, is the best form in which to employ this, and in order to avoid any actual destruction of tissue, it is merely lightly touched to the cocainized mucous membrane at several of the more prominent points of the turbinate. The mild inflammatory reaction occasioned by this will take up the work of absorption where it has been laid down by iodine, and further reduction of the hypertrophy will be effected.

Should cauterization become necessary to completely restore to the nasal fossæ their normal capacity, one or more slender lines may be drawn with the chromic acid upon the lower border of the enlarged turbinate for about two-thirds of its length. The fibrinous exudate that follows this application should be allowed to remain undisturbed until it spontaneously loosens and is expelled. This will usually occur in from five to eight days. It goes without saying that anything of a cauterant nature should only be used under thorough illumination of the nasal chamber.

If it should be found necessary to repeat the cauterization of a hypertrophy, at least two weeks should be allowed to elapse before doing so, and when the fossæ are at last normally roomy, treatment should not be discontinued until all traces of catarrhal action have disappeared.

Atrophic Rhinitis.—The physician will make but little headway in the relief of this notoriously obstinate disease unless he secures the active cooperation of his patient; and this is so essential because of the absolute necessity for frequent and thorough cleansing of the nasal cavities. In the early days of treatment the reappearance of the thick mucopurulent secretion, and the large crusts which result from its inspissation, follows so rapidly upon their removal that washing of the fossæ can scarcely be too frequently repeated.

The patient should be instructed how to carry this out most successfully. As long as crust formation continues, the ordinary atomizer is practically valueless as a means of removing them. The other extreme is the old-fashioned douche, the use of which, though there is no denying its efficiency, is to be deprecated because of the risk of injury to which it exposes the middle ear. An almost equally useful, and entirely safe, device is the little glass vessel known as the Bermingham douche; and, besides this, another implement that answers very well is the rubber ball syringe with its soft and flexible tip.

So large a quantity of solution must be consumed in the effort to maintain cleanliness that, if Dobell or some proprietary preparation be employed, the item of expense may become a very serious one. For these cases, therefore, the normal salt solution will prove sufficiently satisfactory, and it has the advantage of being very inexpensive. A level teaspoonful of salt to the pint of water will yield a solution of appropriate density, and the nose should be flushed with this and blown and flushed again until all secretion has been removed.

During the first week or two of his treatment, the patient's visits to the physician should be almost daily in frequency, and our effort will be to stimulate the circulation, to increase the nutrition of the anemic and atrophic mucous membrane, and, by improving the character and quantity of the

glandular secretion, to retard its inspissation. For this purpose we may make a selection from among a large number of remedies. Formaldehyde in solutions of from 1-to-5000 to 1-to-500, menthol from 5 to 20 grains to the ounce of liquid petrolatum, ichthyol in from 10- to 30-per-cent watery or oily solution, or iodine in the formula already given—any of these may be applied to the entire mucous lining of the nose by means of the cotton carrier, and they should be rubbed into it with some little friction. I repeat, however, that without perseverance on the part of the patient and painstaking thoroughness on that of the physician, very little progress can be made, but given both of these, the amount of improvement that can be obtained is often astonishing.

In conclusion, I venture to again call attention to the assistance that may be derived from everything that will improve the general vigor and nutrition of the patient. Not only his personal hygiene, but his whole environment should receive our critical attention and be made as highly favorable as possible.

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*FORMALDEHYDE.**

By A. A. Young, M.D.,
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Formic aldehyde, an oxide of methylene, is a gaseous substance the molecular composition of which is CH_2O, or one atom of carbon and one atom of oxygen united by two atoms of hydrogen in each molecule. It is readily soluble in water, producing about a forty-per-cent solution, which borders upon saturation, and in this form it is found as an article of commerce. Upon evaporation of the solution beyond the point of saturation a rearrangement of the atoms takes place within the molecule, the composition of which now is $C_3H_6O_3$, known as paraform, a white crystalline substance which, it will be observed, forms a molecule of twelve atoms instead of four atoms, as in the case of the gaseous substance. It is a well established fact in chemistry that the rearrangement of atoms within the molecule produces an entirely different mass with entirely different characteristics and properties, notable examples of which are oxygen and ozone; or the diamond, plumbago, and charcoal. It is for this reason, I believe, without experimentation, that in this polymeric modification paraform loses in the transformation nearly all of the properties of formaldehyde, including its preservative and germicidal actions.

In this connection it will be observed that when paraform is heated in an open vessel it vaporizes, but the vapor on cooling deposits as before crystalline paraform by sublimation. When formaldehyde is heated in an open vessel, and much less heat is required, formic aldehyde, the germicidal agent, is given off vaporized, and so far as known is not redeposited as paraform; but upon the sides of the container, by slow evaporation, this polymeric modification is found deposited. This phenomenon indicates most clearly a chemical change, a change which means new properties and new characteristics; experimentation, so far as made, indicates the truth of this assumption. Paraform is therefore regarded by the writer as a by-product, a new formation, and cannot therefore be compared with formaldehyde.

They are not identical substances, though one may be formed from the other by synthesis or analysis. To convert one into the other requires a chemical change, a rearrangement of the atoms within the molecule; it means a new chemical compound having entirely different characteristics and actions. Recognizing this fact it must be apparent to all that the properties of the one cannot be substituted for the properties of the other by inference, for the indications are that error must certainly follow as the result.

It is a mistaken notion that if formaldehyde be a germicidal agent, paraform, its by-product, must be so also.

In this paper, therefore, only formic aldehyde, or its liquid solution, as found in commerce, known as formaldehyde, will be referred to.

Although formaldehyde was discovered as early as 1863, but little was known of its properties until recent years, its use being entirely confined to the microscopist, who employed it as a hardening and preserving agent. In its actions upon the tissues but few changes are observable; the tissues simply harden without material shrinking or discoloration.

In ordinary pathological specimens you will observe that the outlines in each are clear and strong, that there is no shrinking in any part, that each specimen is more firm

* Read before the Central New York Medical Association, Oct. 16, 1900.

and hard than found in its natural state, and that the natural colors are not affected by the agent.

If, then, formaldehyde possesses such marked properties as a preservative and hardening agent, in like manner must it be, according to theory, a germicidal agent as well, and experimentation testifies to the truth of this assumption.

It has been found by experimentation that solutions as attenuated as 1 to 100,000 destroy quite readily the less resistant germs, while the more resistant ones are readily destroyed when immersed in a solution of 1 to 1000. In this connection it should be observed that in solutions of the latter strength even the *living* human skin (example, the hands) is not appreciably affected by such solution, though the hands may remain in the liquid for a considerable time.

Although formaldehyde possesses such marked hardening properties it exerts no particular influence over mucus or albumen save to render these substances aseptic, or rather antiseptic, a condition that may be advantageous in its therapeutic uses. Of its specific action but little is known, save that it is, of most organic tissues, an excellent hardening agent, and a germicide of the highest potency.

Accepting, then, the theory that most of our diseases, especially the communicable ones, are the *result* of the *action* or *growth* of specific bacteria, and that the destruction of specific bacteria, *in situ* or elsewhere, stands for *prophylaxis*, alleviation or cure of such specific disease, and for which bacteria only stand as the index, then the therapeutic use of formaldehyde, to me at least, is a suggestive one, and clinically in several directions I have experimented along this line with most favorable results, which results it is my purpose briefly to give.

The gas when liberated has the properties of diffusibility and penetrability in a marked degree, and therefore it is admirably adapted for disinfecting purposes, especially small rooms and exposed objects therein; but too great results must not be expected of it, for it will not permeate impermeable objects, and because of this failure it should not be condemned, though some writers have so condemned it. In passing, suffice it to say its penetrability, its effectiveness as a germicide, its comparative harmlessness upon objects with which it comes in contact, indicate it as worthy of an extended experimentation along therapeutic lines. Its use in this relation, as it has occurred in my practice, will now be briefly given.

(*a*) Over four years ago Mr. C. sought advice for a diseased testicle, which I believed to be malignant. Its removal was advised, and an operation performed with the use of mercuric chloride as an antiseptic. Recovery was much retarded by the formation of a fistula beginning near the upper border of the scrotum and passing upward along the track of the cord; from this fistula there was constant discharge.

This fistula was frequently cleansed with peroxide of hydrogen and followed with various other germicides, but without material improvement. A change in the method of treatment seemed desirable. I then placed upon a small probe a bit of cotton which was just nicely moistened with water; immersing this cotton into full strength formaldehyde, and removing the superfluous agent from the cotton by a couple of swings of the probe in the air, it was then inserted into and passed full length of the sinus; the smarting sensation was severe for a moment only, and the patient's language not complimentary. Suffice it to say repair began at once, and within one week there was full restoration of the parts affected.

About five months later the opposite testicle became similarly affected. For this operation formaldehyde was exclusively used in place of mercuric bichloride, and in the subsequent lavage and dressings the use of the agent was continued. Recovery was rapid without discharge or formation of a sinus. The patient is still living and healthful, with no indications of any malignant growth anywhere about the body.

(*b*) For operative procedures in case of ruptured perineum, either recent or old, formaldehyde has been used as a cleansing agent with pleasing results; it coagulates the exudates, hardens the ruptured tissues with which it comes in contact, forming a barrier against septic infection from without, and as such hardening agent it proves to be a most excellent hemostatic as well. I have used it several times, more especially in cases immediately following confinement. Such wound, rough and ragged as it might be, invariably repaired by first intention, and without septic infection, a condition doubtless brought about by the peculiar action of this agent directly upon the lacerated tissues and exudates from such laceration.

(*c*) About three years ago Mr. D. complained of pain in and about the rectum;

examination revealed an anal fistula, blind externally. The usual operation was performed and the wound curetted, after which full-strength formaldehyde was applied to the entire raw surface. The wound was well cleansed and partially closed in order to retain more fully the normal mechanical action of the sphincter ani. The external dressings were moistened with a weak solution of formaldehyde; restoration of the parts was rapid, reaching practically a perfect result.

(*d*) About three years ago Mr. V. requested treatment for bromidrosis. The case was a most severe one, and various remedies had been tried, but without material benefit. A ten-per cent solution of formaldehyde was prescribed, which checked sweating at once; and following this some ten days later there was exfoliation of the affected skin, leaving a healthful skin underneath. So far as known there has been no return of the affection.

(*e*) Various growths and pathological conditions of the skin have readily been destroyed by this agent, notably indolent ulcers, especially of the lip and face; molluscum contagiosum and allied affections, by applications of formaldehyde, have readily lost their vitality, then cleaving from the healthful skin, thus making their destruction complete.

Not alone in surgical work is the use of this agent indicated, but from a medical point of view its peculiar properties suggest its use, and in accordance with such suggestion it has been guardedly administered and its general actions noted as far as possible.

(*a*) Over four years ago Miss M., a dressmaker, began to complain of a gastric disturbance, the signs and symptoms of which were indicative of gastric ulcer. This condition existed in a varying degree of severity till about one year ago, when hemorrhage severe enough to threaten life occurred. Ordinary remedies were administered and the hemorrhage largely but not entirely controlled; there remained occasional attacks of vomiting, which showed degenerative changes within the stomach.

Improvement was not satisfactory. Believing that this condition was induced by the development of some microorganisms, or the activity of some of the digestive ferments within the stomach, pure antiseptic treatment was decided upon and formaldehyde chosen as the agent. (For its action upon digestive processes, see THERAPEUTIC GAZETTE, Oct. 15, 1900, pp. 692, 693.) Two-minim doses well diluted were given every four hours. Immediately following its administration satisfactory and rapid improvement was noted, and the patient is now enjoying better health than for some years past.

The mode of administration which was most satisfactory to the patient as well as to myself was to dilute two minims of the agent in two drachms of water, and to swallow quickly this potion and follow it at once by one-half glass of water; the smarting sensation was then reduced to a minimum.

(*b*) About two months ago I was summoned to attend a case of dysenteric diarrhea in a child. The case was a very severe one from the onset; the child grew gradually worse until death was hourly expected. A change was then made from the usual remedies, and formaldehyde was prescribed in one-minim doses mixed with egg albumen; the disease in its active stage was soon arrested and the patient's life prolonged, but the integrity of the intestinal tract was so altered that death occurred some ten days later, due to malnutrition.

A younger child in the same family was similarly affected, and not till formaldehyde was prescribed, as in the case of the boy, were changes apparent; the child then made a rapid recovery.

(*c*) Lastly, your attention is called to formaldehyde as a prophylactic agent. In the eruptive diseases, more especially so in scarlet fever (on account of the hardening and germicidal properties of this agent), is its value most apparent.

We are all aware how hard it is to enforce strict quarantine over a patient during the entire period of desquamation; we are also aware how difficult it is to determine when no danger exists, when no specific microorganisms can be conveyed from the convalescent to the uninfected. Experimentation has proven, to my satisfaction at least, that when it is applied externally, in scarlatinal cases, beginning with the eruptive and carried well into the desquamative stage, the latter stage is materially shortened, while the vitality of these microorganisms is destroyed within the nidus, the scale, a considerable period of time before desquamation is completed. This conclusion is based upon experience, an experience that warrants the conclusion that as such prophylactic agent it stands without a peer.

It matters not, if the germ be dead, where the scale may go; it can do no harm, it can

produce no life, its power of reproduction is destroyed, reinfection must come from a new source.

Its use as a medicinal agent is only advocated where germicidal medication is called for and indicated; not that it will cure all diseases all of the time, but rather that it may affect, in a desirable way, some of the specific diseases a part of the time.

22 EAST MILLER STREET.

A NOTE ON THE TREATMENT OF CIRRHOSIS OF THE LIVER.

BY F. J. BOWLES, M.D.,
New York.

In a recent issue of the THERAPEUTIC GAZETTE I read an article on this subject, and am induced by it to report briefly a case coming under my own care.

I had treated Mr. —— for a period of about ten years. So far as he was personally concerned, my services were almost invariably for "bilious" attacks. These were of more than ordinary severity, and would keep him in his room for a few days. In September, 1896, I operated on him for hemorrhoids, which, as he then told me, had given him a great deal of trouble for ten years or more. After this his general condition was materially improved, his "bilious" attacks being less frequent and not so severe.

In addition my patient gave a history of specific disease, the primary lesion dating back twenty years. Since the disappearance of the evidences then present he had presented none of the manifestations of the remote effects either in himself or his children, unless the interstitial condition of his liver could be so regarded. He had always been a moderate user of liquors, and within the eight years preceding the ascites had indulged quite freely. As he expressed it, he felt the need of stimulants to enable him to get through his duties, although his occupation was a sedentary one.

This gives us a case in which one would feel warranted in making an unfavorable prognosis when a patient presents himself with such well marked ascites as mine did in December, 1898. I may say the several examinations of the urine gave no evidence of disease of the kidneys; and the heart and lungs were in normal condition.

I was obliged to give him relief from the pressure of the fluid in January, 1899, when I found the quantity equaled thirteen quarts. At the time I thought it good practice to wait until the patient's condition was made so uncomfortable that tapping would become a necessity. In the light of experience and upon reflection I am led to question the wisdom of such a course.

From this time until June 14, 1900, I tapped ninety-seven times. The interval up to July, 1899, was from five to seven days, with an average quantity of about six quarts. I was then obliged to shorten the intervals until January, 1900. During these six months he was tapped forty-eight times, with an average amount of from five to six quarts, reducing to four quarts during the latter part of the period. In January he was tapped seven times, in February five, and in March four times. The improvement was rapid from this on until June 14, when I tapped him for the last time, after an interval of five weeks, and with the quantity reduced to one quart. This was done more as a precautionary measure, as he was making a visit west, and wished to avoid so far as possible the necessity of calling in a physician with whom he would not be acquainted. His condition at the present time is very satisfactory indeed, as he is able to attend to business, and expresses himself as feeling better than he has in ten years.

The diagnosis was concurred in by Drs. E. J. Ware and S. V. Ten Eyck, who saw the case for me in August, 1899, during my absence from the city, and also by Dr. C. N. Dowd, with whom I discussed the possibility of establishing collateral circulation by surgical measures. The rapidity with which the abdominal cavity filled in after tapping determined us against making the attempt, as means looking toward draining off the fluid during union had not thus far been attended with success, sepsis usually resulting. Treatment with mercury and potash, alone or in combination, was tried on two separate occasions, having in mind the specific history, but was abandoned as not only disappointing in results, but as rather aggravating the patient's condition by interfering with digestion. The chloride of gold and sodium after a faithful trial was discontinued, as we could discover no benefit from its use. The usual diuretics and cathartics were given with but temporary effect in influencing the ascites, and possible ill effects in other respects. Restrictions as to diet, and an exclusive milk diet, were strictly observed without in any case accomplishing more than a transitory effect.

To what, then, do I attribute his apparent restoration to health?

In reply I have only to say that my patient became a total abstainer as soon as he realized his condition; that after a time he indulged in a mixed diet; that the plan of medication referred to above was abandoned, and five-drop doses of the fluid extract of apocynum cannabinum were given three times daily. With the commencement of the administration of this drug my patient commented on his improvement, and to it he ascribes the credit. He claims clinical evidence of its efficacy in the fact that he has at different times interrupted its administration for a few days, when edema of the ankles would follow, to disappear rapidly when he resumed its use.

With my limited experience in the use of this drug, together with its being a matter of record that cirrhosis of the liver does, in exceptional cases, follow the course it fortunately did in my patient, I am led to report the case and wait for the accumulation of evidence.

MERCUROL AS AN ANTISEPTIC IN DISEASES OF THE NOSE AND EAR.

R. LAKE writes in *The Lancet* of December 15, 1900, about this new antiseptic. He tells us that mercurol is a brownish-white powder, soluble in water but insoluble in alcohol. It is a compound of mercury with nucleinic acid, and contains about ten per cent of mercury; therefore a five-per-cent solution of mercurol contains one-half per cent of mercury, and this in a form which is non-corrosive and non-irritant. It is at the same time an organic compound and does not precipitate albumin; the general idea which mercurol gives being that at one and the same time it is an antiseptic in the usually understood sense of the word, and will act indirectly on the protoplasm of the nuclei, more especially of the large white blood-cells, as the phagocytes, and thereby enable them the more readily to overcome microorganisms and destroy them in larger quantities. One disadvantage of solutions of mercurol is that one cannot keep it in large quantities, a week being probably the longest time which it can be kept with safety; this, however, is equally true with that most useful antiseptic, formalin, but there is no doubt that in order to obtain the most efficient action of mercurol it requires to be employed like chlorine, freshly made.

Dr. Lake has not kept regular statistical accounts of all the cases of chronic suppurative otitis which he has treated with mercurol; and even if he had, the probability of mercurol being found largely superior to other antiseptics in this disease is very problematical, chiefly on account of the mechanical obstructions to the antiseptic reaching the parts affected. In acute suppurative otitis, however, the conditions are very different. He has used it in three cases immediately after incising the membrana tympani. It should, of course, be used to disinfect the canal previously to the operation where it is to be used afterward as the antiseptic. The three cases were all cured within ten days, the most rapid cure being four days.

Dr. Lake has used mercurol (two-per-cent) twice after operations, one being a double ossiculectomy and the other an operation for opening the frontal sinus. The wounds in both cases remained in an absolutely satisfactory and aseptic condition, though one would frequently find it necessary to change from so bland and unirritating an antiseptic to one having the strongly caustic properties of five per cent of carbolic acid, especially where much ulceration remains, the tendency of which to secrete it is frequently desirable to overcome. He has also irrigated the frontal sinus with it via the infundibulum with satisfactory results; but as these cases have been amongst hospital patients, and he has been unable to see them sufficiently often, he cannot attribute a cure to mercurol in this respect, though the general impression he derived was that had he been able to use it sufficiently often, say daily, it would have given better results.

With regard to chronic suppuration of the middle ear Lake has only quoted one case. From the small number of cases in which the drug was systematically used the general results may be apparently slightly above the average obtained by other antiseptics. But, as before remarked, it is the anatomical and mechanical obstruction to the penetration of any particular remedy to the seat of the disease that renders this ailment so intractable. So to claim for mercurol any peculiar and specific action in this disease would be, in his opinion, absurd. His general experience is that mercurol is the least irritating efficient antiseptic with which he is acquainted, being possessed of properties which commend it highly, especially as a lotion for the irrigation of cavities such as the maxillary sinus.

The Therapeutic Gazette

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Leading Articles.

SOME FACTS IN REGARD TO HYPODERMOCLYSIS.

Five or six years ago the GAZETTE published several articles, chiefly in its editorial columns, dealing with the value of hypodermoclysis, or the introduction of artificial serum into the subcutaneous tissues, in the treatment of a number of conditions. Indeed, we believe the GAZETTE was one of the first, if not the first, journals in this country to popularize this very valuable method of treatment, which has since become one of the most constantly and widely employed measures. That its wide employment has again and again saved life cannot be denied. We have in many instances seen apparently hopeless cases saved by its proper application. Not only does it dilute toxic materials in the body in cases of infectious diseases and other forms of poisoning than infection, but it causes the elimination of toxic materials by increasing the flow of urine, and in many instances, in this indirect manner, benefits the general genito-urinary tract by diluting the urine so that it is no longer irritating. As with most therapeutic measures which are greeted with enthusiasm, it has been at various times somewhat abused — that is to say, it has been given to patients who were so ill that no good could be expected from its employment, and then when it failed to do good has had discredit cast upon it. Then, too, it has been abused, in that non-sterile apparatus has been employed, which has resulted in the production of local inflammation; and again, the salt solution has been poured so freely into the subcutaneous tissues that it has practically drowned the patient by being introduced faster than his emunctories could eliminate it. Finally, we know of instances in which the solution has been employed so hot, by a careless nurse, that a local slough has been produced; and again, of other cases in which the fluid was entirely too cold. Hypodermoclysis is not a method of treatment which can be hurried. The supply of fluid to the subcutaneous tissues ought never to be so free as to produce a huge swelling resembling a hematoma. While a certain amount of swelling necessarily comes from the extravasation of fluid, it ought at no time to be tense, and at no time so large as to indicate that the body cannot absorb it almost as fast as it is poured in. Of course, in instances where the body is starved of blood because of hemorrhage, absorption takes place more rapidly on the part of the hungry blood-vessels than it takes place in a case of Bright's disease, when the subcutaneous injection is employed to dilute poison and to increase urinary flow. Therefore no definite time for the duration of the injection can be named, since the hemorrhage case on the one hand should receive and can absorb the fluid rapidly for the needs of the body, while the renal case not only does not need it within the next few minutes, but will not absorb it with sufficient rapidity to prevent great subcutaneous swelling unless the flow is slow. Then, too, there can be no doubt, as we have already suggested, that at times too large quantities of fluid are introduced.

It has been recently suggested by Dr. Kemp, of New York, that in children often so small a quantity of liquid as one to two ounces of normal saline solution is sufficient, and that four ounces will often be of value in increasing the urinary flow in adults. It is a noteworthy fact that these injections not only increase the urinary flow as a rule to the extent of the injection, but that they

seem to possess a distinct diuretic influence in that the urinary flow is three or four times as great as the quantity actually injected. The best place for the injection is probably in the lateral lumbar region, since this part is not well endowed with sensory nerves, the tissues are lax and can receive a considerable quantity of liquid, and should any local irritation ensue the part is not pressed upon when the patient is lying in bed.

A very common fault in the administration of hypodermoclysis is the employment of water which is not hot enough. Even although the fluid may be quite hot when it is placed in the reservoir, it very speedily cools as it passes through the long thin rubber tube which conveys it to the needle in the patient's skin. The consequence is that while at the beginning of the injection the reservoir may contain hot water, from the very beginning the fluid delivered to the patient is too cold. There are two ways in which this fault can be avoided: one is by using very hot water in the reservoir, which possesses the disadvantage that should the flow be too rapid the patient may be locally burned; or better still, a section of the tube from the reservoir may be coiled several times in a basin of very hot water, which water may be renewed from time to time, and in this way the fluid, as it flows through the tube, is kept at the proper temperature. It is not necessary, as a rule, to use water in the reservoir above 120°; but the water as it is delivered to the patient should be from 105° to 106°.

It is to be recalled that these injections have a very wide clinical application. The following are some of the conditions which they are of value in meeting: Hemorrhage, surgical shock, toxemia from sepsis or any one of the infectious diseases, puerperal eclampsia, renal disease, diabetic coma, poisoning by the various vegetable alkaloids, snake poisoning, etc. In scarlet fever and diphtheria, and in certain cases of pneumonia with marked toxic symptoms, the injections are without doubt of very great value, as they are also in some cases of suppression of urine from etherization. The solution which is employed, modified from the formula of Ringer by Locke, as we have pointed out before, can now be obtained in the form of "concentrated sterile saline," put up in ounce bottles, thoroughly sterilized and sealed, and of such strength that if the contents of one of these bottles is added to a liter of pure water, a normal saline solution is at once at hand. This is very much better than the use of saline tablets, which are often difficult to dissolve, and which not infrequently leave some sediment in the solution. Further than this, this mixture is very much better than the ordinary salt solution made with sodium chloride, or common salt, alone, in that it more closely approximates the normal serum of the blood. Recent physiological researches published in the *American Journal of Physiology* indicate that solutions made of chloride of sodium alone are by no means as harmless as many persons have supposed.

THE TREATMENT OF RICKETS.

Many years ago it was supposed that the chief if not the sole cause of rickets in children was due to their taking food which did not contain the proper quantity of lime salts, and other bone-forming ingredients, to supply the growing bone structures with the needful amount of material. To meet this supposed need, many of these patients received not only foods which contained considerable quantities of bone-forming material, but in addition were given preparations of lime and soda with the expectation that the deficit in the food would thereby be corrected. Gradually, however, some of the profession came to know that in a certain proportion of cases of rickets the difficulty did not lie with fault in the foodstuffs, but rather depended upon an inability on the part of the individual to assimilate the bone-forming materials which the food actually contained. Or again, that if these substances were properly taken up from the digestive tract, the whole process of bone nutrition was so perverted that they were not properly deposited, and so bony tissue was not properly developed.

It is not to be denied for a moment that in certain instances rickets depends upon faulty and poor food, but the aspects of the case which we have just presented are also not to be denied. Indeed, some, as is well known, have gone so far as to assert that rickets is an infectious disease. While the latter view has not gained many adherents, yet a sufficient number of able men have supported this hypothesis to make it worthy of respect. Again, while foods may contain a sufficient quantity of bone salts, they may be unsuitable in other respects, and by disordering digestion absolutely prevent the child from obtaining the various substances that it needs.

If a food contains too much water, too much fat, or too much sugar, digestion and nutritional changes may be altered in the manner that we have described with a similar result. This is probably one of the reasons why bottle-fed children are more frequently rachitic than those who are fed with mother's milk, particularly if the child is fed from bottles prepared from condensed milk, which feeding frequently results in the development of a very fat baby which has no vital resistance and readily succumbs to the first illness from which it suffers. Indeed, we do not know any more remarkable fact in medicine than the lack of vital resistance often shown by such babies, which are apparently splendid specimens of babyhood, until they are attacked even by moderate illnesses. There is no doubt in our minds whatever that bottle-fed babies who have received condensed milk for a long time are a fair mark for almost any illness, epidemic or otherwise, to which they are subjected. The rachitic state, too, is sometimes overlooked as being the provoking cause of many disorders of digestion and of the respiratory system, for which states remedies other than antirachitic substances are frequently given. How often we see instances of undue susceptibility of the mucous membranes to cold, or attacks of spasmodic croup, arising as the result of improper feeding which directly produces an attack or results for many days in nervous perversions which destroy the child's health. Careful attention to the diet and the study of the nutrition of the nervous and bony system of the child will frequently clear up cases which otherwise seem most difficult in diagnosis and treatment. Not long since we saw a patient which manifested none of the rachitic symptoms except that it screamed and cried incessantly, wearing out his mother and nurse, which was in reality instinctively screaming for various foodstuffs of which he was being deprived, the screaming being due to nervous inanition.

With regard to the discussion as to the value of phosphorus in rickets we have not time at present to deal. Much has been written claiming that it is not a specific remedy in rickets. In all probability it will be found that it is exceedingly advantageous in some patients, and in other instances it does not meet the needs of the case because rickets, like many other conditions, arises through various causes which must be met by different lines of treatment. To the average child we think that phosphorus can be given best in pink granules containing a two-hundredth of a grain. But if this is not possible, a prescription which is quoted by Hand as follows may be employed:

Phosphorus, 1 grain;
Absolute alcohol, 350 minims;
Spirit of peppermint, 10 minims;
Glycerin, 2 ounces.
Six to twelve drops three times a day after meals.

FEEDING IN TYPHOID FEVER.

On two or three occasions within the last two years we have mentioned this subject in the editorial columns of the GAZETTE, and we return to it at this time simply because we wish to reiterate our belief in the fact that many cases of typhoid fever do not receive the quantity of nourishment which their condition demands. There is always danger when physicians begin to leave a habit of years of passing to the opposite extreme and giving too much food, and we do not wish to be understood as believing that typhoid fever patients should be stuffed in the manner in which we are wont to use superalimentation in other patients who are recovering from diseases which have sapped their vitality, but which have not, in all probability, so materially interfered with the digestive organs as does the disease we are speaking of. A recent statement made in the *University Medical Magazine* is perhaps the chief reason for these remarks being made at this time. After quoting the papers of Shattuck, Thayre, Vaques, Fitz, Manges, Marsden, and others, the writer expresses his belief that full feeding in typhoid fever not infrequently produces a recrudescence of fever, and even a relapse, and the researches of Horton Smith upon the bacteriology of the intestinal contents in typhoid are quoted as indicating that too hearty feeding may greatly increase the possibilities of reinfection by those bacilli which are in the intestine. Attention is then called to the fact that the employment of soft eggs and broths is always apt to produce a decided rise of temperature. We believe that soft-boiled eggs can be taken advantageously, provided they are so softly boiled as to simply have the raw taste removed from them, and that they are not masses of albumen which may be difficult to digest.

We have always held that the administration of various broths made of meats to typhoid fever patients is disadvantageous, as in a large number of cases it increases fetor of the stools, diarrhea, tympanites, and

the manifestations of toxemia. On the other hand, it has been our experience that many patients are able to take rice which has been carefully strained, or mashed into a pulp after thorough boiling, corn-starch, eggs, and similar articles of diet, easy of digestion, not only with impunity but with very distinct advantage, particularly if the digestion of these starches is aided by the administration of taka-diastase in its liquid or powdered form. There can be no doubt that the use of taka-diastase under these circumstances is of very great value, as it is important that digestion of the starches should be carried on rapidly before fermentation changes can take place, and it is equally important that the results of this form of digestion should speedily gain access to the organs of assimilation. When we consider that carbohydrate materials are required by all persons who are suffering from fever, in the sense that it is these substances that are largely affected in the febrile processes, the importance of this form of feeding is emphasized, and we believe that in many instances of prolonged illness physicians will do well if they do not confine their patients solely to meat extracts and proteid foods, but will permit them to have a barley jelly, strained oatmeal, strained cracked wheat, or similar starchy foods, in order that the proper food balance may be maintained. There are very few of us in health that would get along well for several weeks if we were confined to beef broth and milk, and so far as we know, there is no good reason why simple and easily digested starchy food should not be digested and readily assimilated in a disease like typhoid fever.

We are glad to note in the article which we have quoted that the writer, Dr. Edsall, quotes with approval the warning by Bäumler, who, after an extensive experience in 1019 cases, states that in his belief the plunge bath should always be looked upon as causing some strain on the heart, and that in many instances it is wise to modify the plunging by cold sponging or even by tepid sponging in very susceptible individuals. This, it is to be remembered, is the standpoint which we have taken for a number of years, and on no occasion have we denied the value of cold plunges in many cases of typhoid fever, but we have urged that the use of them should be modified to suit the individual case in exactly the same way that the dose of any active remedial substance should be modified to suit the needs of each patient.

THE CHOICE OF OPERATIONS IN THE TREATMENT OF STONE IN THE BLADDER.

The splendid success achieved by the Bigelow operation in the treatment of stone in the bladder, this operation consisting in the crushing of stones and the washing out of the fragments at one sitting, would seem to have so thoroughly established this method of procedure as to make it our first choice in the treatment of vesical calculus. A discussion of its merits as compared with those incident to cutting operations would seem needless, yet there has been a reactionary tendency in recent years toward supplanting the Bigelow operation by perineal or suprapubic lithotomies, or toward materially modifying the original operation, in which the crushing and evacuating instruments were passed through the entire urethra by introducing them through the perineal opening. Thus, it is notable that of over 300 lithotrities performed at Hyderabad, ten per cent were operated upon through the perineal wound in spite of the fact that statistics show for this modification of the Bigelow operation a double mortality, and that a much longer period of convalescence is necessary. Milton, commenting upon these figures, expresses his belief to the effect that Keith's operation—that is, the introduction of the crushing and evacuating instruments through the perineal wound—is principally useful in facilitating the crushing of stone in small children and in other patients with a diminished urethral caliber, as a refuge for the imperfectly equipped and as a stepping-stone to better methods.

Milton notes Smith's analysis of 7954 operations for stone performed in various parts of India. Of this number, some 181 weighed more than two ounces; eighty-nine of these were treated by litholapaxy, with forty-six deaths. Milton's personal experience of litholapaxy for large stones has been forty-three cases performed by the urethral route, and including four stones between 6 and 12 ounces, three stones between 12 and 16 ounces, and one stone of 16¼ ounces. There were four deaths.

By the perineal route he has performed thirty-two operations for large stones, including six between 6 and 12 ounces, and one stone of 14 ounces, with only two deaths. Harrison has published fifteen cases with no deaths.

Milton's personal experience of 100 large

stones, weighing in the aggregate 400 ounces, has led him to the following conclusions:

That with a good lithotrite of dimensions within the limit of an average adult urethra almost any stone can be crushed, the exceptions certainly not being two per cent.

That the principal element of success in crushing a large hard stone lies in the prolonged and judicious application of the crushing force.

That a perineal lithotomy, preferably lateral, followed by the crushing of the stone and its evacuation with suitable instruments, will yield results little, if any, inferior to those of any other operation.

That the successful results of the above operation are largely due to the drainage afforded to the diseased bladder.

The enormous experience of the Indian and Egyptian surgeons in the treatment of stone in the bladder entitles their opinions to great weight. Their low mortality is doubtless in part due to a manual deftness which can be acquired only by constant practice; in part no doubt to the judicious selection of the operation best suited to the individual case.

To one who has had the trying experience of crushing and washing out a stone of more than six ounces in weight, the perineal method will commend itself on theoretical grounds. It is satisfactory to note that Milton gives good clinical data for this easier, much quicker method.

TUBERCULOUS PERITONITIS.

On the basis of a very large clinical experience and at the hands of many different operators, the fact that a large percentage of cases of tuberculous peritonitis can be cured by abdominal section seems to be well established; though it is to be noted that in certainly the great majority of cases the cure is reported at the time of convalescence from operative procedure or shortly thereafter, and there is no record of the remote results of operation; hence a statistical study is by no means convincing as to the permanency of the reported cures.

Oehler quotes Adossides to the effect that seventy-five per cent of 405 operative cases were cured, while Frank, writing upon the remote results of operative treatment for tuberculous peritonitis, believes that only forty or fifty per cent remain well for a long period of time. This latter observer notes the fact that tuberculous peritonitis not infrequently undergoes spontaneous resolution, and regrets that there is no statistical study upon which may be based a fair estimate as to the percentage of cases which would recover if subject to conservative treatment alone.

It is with this question that Oehler particularly concerns himself. In five years he has had to treat in his hospital experience 19,000 patients. Of this number 912 were tuberculous; forty-four of these were suffering from tuberculous peritonitis, and in thirty-nine of these cases the course and termination have been noted. Of these thirty-nine, eighteen are dead of meningitis; twenty-one are alive and well, giving the percentage of definite cures as fifty-one.

He notes that there may have been a mistake in the diagnosis in some of these cases. The diagnosis was based on emaciation, feverish reaction, occasional diarrhea, abdominal distention with liquid in the peritoneal cavity, and soft or hard nodules perceptible on palpation. To demonstrate the presence of ascites both percussion, with the patient in the recumbent and standing postures, and exploratory puncture are valuable means. A symptom of great importance is the frequent involvement of the navel and regions surrounding it. Nodules form here as they do in cases of intrapelvic cancer, and when present their diagnostic value can scarcely be overestimated. These nodules are sometimes extremely tender. When the vaginal process of the peritoneum remains patulous, the tuberculous involvement is very likely to extend along it, forming a nodular irregular cord with infiltration of the epididymis or even of the testis itself. The evidence obtained by auscultation is of slight moment; occasionally friction sounds can be heard.

It is a generally accepted truth that cases of tuberculous peritonitis with marked effusion are prone to recover.

Oehler points out that tuberculous peritonitis is essentially a disease of youth and childhood; that a common cause of death is meningitis; that the natural tendency, especially in children, is to get well. He supports his conclusions, which seem quite rational, by full details of some extremely interesting cases.

Even though a fair percentage of these cases recover without operation, this does not militate against the fact that a much larger percentage can be cured by section.

Since this can be performed under local anesthesia, without shock or bleeding, and hence without subjecting the patient to added risk, there seems no good reason why practically every case of tuberculous peritonitis should not be opened both for diagnostic and therapeutic purposes.

Reports on Therapeutic Progress

THE TREATMENT OF INTERNAL HEMORRHAGES.

WALTER GEORGE SMITH states in the *British Medical Journal* of October 13, 1900, that hemorrhages, whether external or internal, are all due to similar pathological events. The methods by which all hemorrhages are arrested are identical, whether the bleeding be from an external, visible, and accessible spot, or from an internal and invisible region. That is to say, there can be no contradiction in principle between the medical and surgical treatment of hemorrhage. We should take care not to do harm by our therapeutic procedures. Few cases of hemorrhage from the lungs, bowels, or kidneys are in themselves fatal or even imminently dangerous. Patients die after hemorrhage, but not often of it. The peace of mind of the patient is often more in question than his bodily risk. Many cases of hemorrhage stop naturally and speedily, if only let alone. Drug treatment of hemorrhage is often superfluous, and sometimes mischievous. The sources of hemorrhage are plainly three, namely: (*a*) Capillary oozing or rupture, for example, in early phthisis; (*b*) venous oozing or rupture, for example, hematemesis in hepatic cirrhosis; varicose veins; (*c*) arterial rupture, for example, aneurism, and phthisis in its later stages.

Is it not idle to speak of a common treatment for each and all of these, and absurd to administer the one drug—that is, ergot—in all three cases? No sane man treats bleeding from varicose veins by internal—that is, so-called remote—hemostatics. Whenever a bleeding vessel is accessible it is treated on rational principles. When it is hidden from our sight, guesswork and irrational hypothesis seem to have guided our therapeutics.

The processes by which hemorrhage can be arrested are closure of the bleeding point mechanically, by ligature, simple pressure, acupressure, torsion, and the like; coagulation of the blood at the source of bleeding produced by (*a*) certain changes in and around the bleeding vessels, namely, retraction, constriction of the blood-vessels, and clotting within and without the vessel; (*b*) diminution of the force of the heart's action—that is, a considerable fall in blood-pressure; in some cases of "bleeders" the only cure for hemorrhage seems to be to faint—that is, to bring the blood-pressure to a very low ebb; (*c*) alterations in the chemical constitution of the blood whereby clotting is favored, and coagulation tends to occur at a damaged portion of the tissue; this is the principle of Wright's proposal for the administration of calcium chloride. Leaving entirely out of consideration the approved surgical means of checking hemorrhage, let us in the light of the above principles look more closely at the medical treatment still commonly in vogue.

Local Styptics and Hemostatics.—There can be no doubt about the efficacy of these remedies, and their rationale is quite simple. They operate mainly in virtue of their albumen-coagulating properties, and their action can be analyzed into two factors, namely, formation of a primary albumometallic compound, and, in a few cases, constriction of the blood-vessels in addition. A glance through the text-books will soon show that the experiment of the action of internal hemostatics is at one time explained by the same principles which govern local styptics, and at another time it is shirked. The number of diverse remedies recommended, for example, in hemoptysis, is, to the writer's mind, at once an example of the *nimia diligentia medici*, and an additional proof that in a multitude of remedies there is no true cure. But what about the so-called internal or remote astringents which are so often prescribed? Most of them can be grouped under three heads, namely: (*a*) free acids, chiefly sulphuric and tannic acids; (*b*) metallic salts, chiefly of iron, silver, lead, and copper; (*c*) ergot of rye.

When in consultation on cases of hemorrhage, the remark is often heard, "We must do something." Quite true, but let us not do a foolish or a useless thing merely to comply with popular prejudice. Of the vegetable astringents, represented by tannic and gallic acids, suffice it to say that there is absolutely no foundation for the reputation which gallic acid has so undeservedly obtained—not even is it a local styptic. Tannic acid is, no doubt, a local styptic by its albumen-coagulating power. But the careful researches of

Stockman have demonstrated the futility of using it as a remote astringent. It is absorbed in the form of alkali tannate, which has no styptic power, as indeed is obvious from its presence in the blood. It is excreted in the urine as alkali tannate, and as gallic acid—that is, in a harmless and useless form. It is conceivable that a non-astringent combination such as alkali tannate might be dissociated in the kidney, and free tannic acid liberated, but this is not so. It is therefore childish to continue to prescribe internally either tannic or gallic acid for the relief of pulmonary or renal hemorrhage. In gastric and possibly in intestinal bleeding, large doses of tannin might have some effect, but they are nauseous and apt to sicken the patient. Ergot of rye is probably the leading favorite with most practitioners, and is recommended in every text-book of therapeutics or practical medicine in the treatment of cases of hemorrhage. For many years past Smith has never ordered it in such cases, and he never gives a hypodermic injection of "ergotin." Without entering upon the difficult question of the action of ergot, Smith points out that even if we admit as proven the oxytocic action of a drug upon a large and specialized mass of unstriped muscle under special circumstances, it is unwarrantable to assume that therefore it will cause contraction of the unstriped muscular tissue in the walls of the smaller blood-vessels. Moreover, the experimental evidence in support of the proposition that ergot does cause a wide-spread contraction of the smaller blood-vessels is contradictory, and it is only by experimental pharmacology that such a point can be settled. M. Liégeois a few years ago made a vigorous protest against the routine treatment of hemorrhage by ergot. Ellinger's experiments go to show that "ergotin" induces no vascular contraction. Likewise, as to the blood-pressure, the evidence is contradictory as to whether ergot raises it or lowers it. Ellinger believes that ergotin may have a specific action upon the blood itself whereby coagulation is more easily induced at susceptible points in the vascular cycle. We must also bear in mind, as Pick shows, that the proof that any given substance has the power of causing vasoconstriction in a certain area allows no positive conclusion to be drawn for its employment as a hemostatic in other territories of the body, because the final effect in the various vascular areas is a variable thing.

In his article on "Secale Cornutum" in Eulenburg's Real Encyclop., Bd. xviii, 1889, Vogl, while accepting the value of ergot in uterine and intestinal hemorrhage, demurs to its use in hemorrhage from the lungs and other organs because there is no satisfactory evidence that it causes contraction of the small arteries. At a discourse in the Manchester Therapeutical Society upon the treatment of hematemesis, Dr. Dreschfeld said that "ergotin injections did no harm and might do good," and the late Dr. Leech likewise stated that "injections of ergot did no harm and seemed to do good." This is faint praise, and Smith is not so sure that we can confidently say that ergot does no harm. Apart from the pain and local troubles that sometimes ensue upon hypodermic injections of this drug, it is, if given by the mouth, liable to induce nausea and even vomiting, and to upset the digestion, surely very undesirable things. If ergot did cause a wide-spread narrowing of the peripheral blood-vessels, would not this raise the blood-pressure, and so be the worst possible thing to do in a case of hemoptysis?

Dr. Hawkins considers that he has observed in a case of hemoptysis occurring in a patient with renal cirrhosis that the administration of ergot increased the hemoptysis. Dr. A. Foxwell gave ergotin a fair trial in hemoptysis. When he was resident medical officer at the General Hospital, Birmingham, his routine treatment was thirty grains of Bonjean's ergotin injected deeply into the muscles of the buttocks. He says: "I never saw any injurious effect, local or general, result from such treatment; nor can I say that I was ever able to definitely associate any cessation in the hemoptysis with its use." He further pertinently asks, "But were it good to contract the arterioles of the lungs, how do we know that ergot will do this?" "It is difficult to understand," says Dr. Hess of the Falkenstein Sanatorium, "how one of the last named drugs (hydrastis, ergotin, stypticin) could directly influence a hemorrhage which usually originates in a blood-vessel embedded in an infiltrated or diseased mass, the wall of which, especially the muscular coat, has been considerably damaged."

What treatment, then, is rational, say, in an urgent case of hemoptysis? (1) Reassure the patient and calm his natural alarm and excitement and that of his friends by a few judicious words and simple directions, and emphasize the fact that hemorrhage *per se* is rarely a matter of urgency. It is curious to observe that gastric hemorrhages, which are

often of much more serious import, have not the same depressing effect upon the patient as a slight tinge of blood in the expectoration. (2) Avoid irritation of the gastric ends of the vagus nerve. Therefore do not administer cold drinks or pieces of ice to patients suffering from phthisis complicated with hemoptysis. Cold drinks irritate the gastric branches of the vagus, give rise to cough, and thus aggravate the bleeding. Moreover by causing contraction of the blood-vessels of the stomach, they may tend to increase the flow of blood to the lungs, and intelligent patients, the subjects of hemoptysis, usually discover the truth of this by experience, and avoid cold drinks (Eklund). Allow, on the contrary, warm mucilaginous drinks. An ice-bag to the outside of the chest is perhaps of use. (3) Keep the patient absolutely quiet in mind an body. (4) Give morphine hypodermically; this is the best thing of all to do. (5) Relieve the bowels freely by magnesium sulphate or by calomel. (6) Let the diet be simple and nutritious, reduce the amount of fluid, and give no alcohol.

SOME OBSERVATIONS ON ANESTHESIA BY INTRASPINAL INJECTIONS OF COCAINE.

GOLDAN writes in the *Medical News* of November 10, 1900, that when he used this method some of the patients were entirely free from all subjective symptoms. Anesthesia failed entirely in three cases, in two of which more than half a grain of cocaine was injected. In others anesthesia was partial; in still others a second injection produced satisfactory anesthesia. Marked toxic symptoms developed in one patient, an obstetric case. The respiration was gasping, shallow, and sixty to the minute; pulse 140, small and irregular; profuse perspiration; muscular tremors; face absolutely colorless; pupils contracted. This patient had very intense headache for two days following the injection.

Deductions based upon his own experience and also the reports of other investigators which do not materially differ from his can be summed up as follows:

1. Cocaine introduced into the subarachnoid space acts in the same way as it does when injected into the general circulation, being possibly less toxic.

2. There is no definite quantity which will answer in all cases. Some are easily influenced by small doses, whereas others require large amounts to produce the desired effect.

3. Temperament, type of patient, and condition of health do not seem to influence the action of the drug. Large, healthy individuals are often affected by small doses, whereas the sickly, emaciated types often require second injections to produce anesthesia.

4. There is no method of determining how any particular dose will act in a particular case.

5. Large doses should never be used until the individual susceptibility is determined.

It is singular that when a first injection produces no anesthetic effect it also produces slight physiological symptoms. A second injection may then be made with safety. When anesthesia is but partial a second injection may be made; this to be less, however, than the first.

BRONCHIAL DISEASE NOT INVARIABLY A CONTRAINDICATION FOR ETHER ANESTHESIA IN ABDOMINAL SURGERY.

THADDEUS REAMY is very positive in his assertions in regard to this point in the issue of the *Medical News* of November 10, 1900. He states that his record shows a number of cases anesthetized and operated on when bronchitis in the first stage, acute form, was present, with the result of arresting cough, and destroying the mucous congestion present; but the length of his paper forbids his giving further details or recital of cases.

He finally reiterates the statement that his clinical studies justify him in the belief that in properly selected cases ether inhalation is positively curative of bronchitis. That its action in these cases is largely local he has no question. To avoid unpleasant complications and to secure the desired results, the following points are essential: (1) Proper preparation of the patient. (2) Preparation of the operating-room with a temperature of 98° to 100° F. (3) Pure ether. (4) A proper inhaler. (5) The proper methods of administration. (6) Due caution against exposure in removing the patient from the operating-room to her own room. The temperature of her own room should not be below 80° to 90° F. for several hours after the operation. (7) Proper care of the patient during convalescence. She should be permitted to drink large quantities of water and should keep the bowels freely open.

A NEW AND TOLERABLE FORM OF ADMINISTERING MERCURY IN THE TREATMENT OF SYPHILIS.

AYRES states in the *Philadelphia Medical Journal* of November 10, 1900, that mercurol is superior even to mercuric chloride in controlling the symptoms of syphilis, and this is proved, in his opinion, by the trial he instituted. Like all preparations given internally mercurol has very little effect on the chancre; still, it has hastened the healing slightly. It seems to be much more efficient in controlling skin eruptions than mucous eruptions.

Two further remarks may here be made: first, that the number of patients who have returned for treatment is unusually large for dispensary work; and secondly, that of twenty-five patients whose cases he reported, none required to be put upon potassium iodide to control the secondaries. In one case the addition of potassium iodide had no effect in controlling the pains. In another case the eruption was one of tertiary variety —that is, marked thickening of the skin.

It has seemed to the writer in the short time that he has used mercurol (1) that it causes less disturbance of the gastrointestinal tract than any other preparation of mercury used internally; (2) that it controls skin eruptions and pains much better than any other preparation, while it controls mucous eruptions as well as any other, and has equally good effect on the chancre; and (3) it is an advantage that it can be taken in pill form. These three points make the preparation one of great value.

VALUE OF POTASSIUM BICARBONATE IN COLDS AND INFLUENZA.

HARNSBERGER states in the *Philadelphia Medical Journal* of November 10, 1900, that in his experience potassium bicarbonate, given early, will, in nearly every instance, abort a cold very effectually and almost at once. The remedy is well borne by both elderly and weak persons. Nor is it necessary for them to keep indoors as after the treatments commonly in use. Even when the case has advanced further and fever is present, this drug, with others indicated, will help greatly to reestablish the normal adjustments of the body. In those cases in which the tonsils are involved or in which the catarrhal inflammation affects the other air-passages, or the alimentary canal, potassium bicarbonate will demonstrate its benign influence. Pneumonia is a less frequent result in such cases, and when it does come on, he finds it runs a much milder and shorter course.

But it is in influenza that Harnsberger particularly speaks of potassium bicarbonate as a remedy of unusual value. He began its use in this disease in the autumn of 1889, and his observations of its beneficial effects through the epidemics of influenza since that year have convinced him that it is a therapeutic agent in which we can place the utmost confidence. According to his experience an influenza is the only disease which seems to weaken the adult heart muscle primarily, or from the very outset of the attack. This is why pneumonia is so frequent a complication. The patient either succumbs to pneumonia or is left in a weak condition, with lowered digestive function and an irritable condition of the heart, physical exertion being almost out of the question. He does not attempt to explain in what way potassium bicarbonate acts, but he finds that his patients taking the drug get quick relief, and make a more speedy and thorough recovery.

Osler, in speaking of the treatment of influenza, says: "The depression following the disease is one of the most unpleasant and obstinate features." Tyson says: "Weakness following influenza may be extreme, and the slightest effort, physical or mental, promptly convinces the patient of this, and the duration of the weakness may be prolonged for months." Of course, as we all know from experience, it is this weakness or depression in the acute stage and subsequently that the danger chiefly lies. Exertion, diaphoretics, coal-tar derivatives, etc., only tend to increase the danger by still further lessening the resisting power of the system. Potassium bicarbonate, following a free action of the liver, rest, and a concentrated liquid diet, are in the writer's experience the best safeguard against the development of still more unfavorable and perhaps fatal prostration.

Harnsberger gives thirty grains of potassium bicarbonate in a cup of milk every four hours during the day, and no other diet for forty-eight hours, and finds that this will, in most instances at least, quickly start the patient along to health. When milk is not well borne or readily taken, administer the remedy with a glass of water and allow only liquid diet, and in from thirty-six to forty-eight hours most patients will feel better and want to eat.

Nothing seems to assist the action of po-

tassium bicarbonate so well as a cathartic, such as calomel, podophyllum, etc. In fact, there are cases in which it is extremely difficult to get the bowels to move on account of a temporary paresis of the muscular coats of the intestines. These patients do not show so much systemic weakness or heart depression, and when the functional activity of the bowels is restored, they very rapidly return to health. But whether the disease affects the brain, the lungs, the heart, or the bowels, the writer is confident, from a considerable experience, that no treatment for influenza will do more genuine and permanent good than full doses of potassium bicarbonate.

The prognosis of influenza of a severe type is much worse in the weak and elderly, on account of the frequency and special tendency with which the heart muscle is involved —especially the tendency to acute dilatation and the liability of the attacks to be complicated with pneumonia. The tonicity and resisting power of the heart muscle in adults seems to be lowered in this disease—a striking resemblance to a like condition of the heart muscle in children suffering from severe acute infectious diseases. To obviate this danger, cases of this character of influenza in adults should be treated with maximum doses of potassium bicarbonate, and absolute rest in bed enjoined. Harnsberger has now a patient who will round up 100 years of age on September 26 next, who is doing well on potassium bicarbonate, though she showed in the outset of the attack every symptom of beginning pneumonia and cardiac failure.

MASSAGE OF THE EYEBALL.

Casey Wood, the well known Chicago ophthalmologist, states in the *Journal of the American Medical Association* of November 17, 1900, that he has used ocular massage extensively for many years, and avails himself of this opportunity of exchanging with his colleagues opinions as to its efficacy.

First, he speaks particularly of the simple and not of the instrumental variety, such as the direct rubbing with pieces of cotton-wool or some fabric mounted on a convenient shaft, the tapotement (or tetanization) of Maklakow, the use of sounds, with or without buttonheads, and other devices. In the main, indirect massage (Pagenstecher, Michel) with the pulp of the finger placed on the skin of the lids is to be preferred. Costomiris, formerly of Athens, who speaks enthusiastically of massage, believes that the best results are obtained by the direct rubbing of the fingertip or tips on the exposed cornea and conjunctiva. So far as the latter membrane is concerned, he believes that direct massage is valuable, and in some instances decidedly preferable to the indirect method, but the stroking movements, with slight pressure on the exterior of the eyelids, are usually sufficiently efficacious, are certainly less difficult to carry out in practice, and are more readily borne by the majority of American patients.

It is necessary to say that the amount of force used, the length of each sitting, the frequency of the applications, the strength and character of the remedial agent, if any, used with the rubbing, and the susceptibility of the patient, are prime factors in the successful employment of massage, and are quite as important as the selection of cases appropriate for this remedy. Let us consider these in the order stated.

In indirect massage the act should never of itself produce pain, and rarely more than a passing discomfort. Wood thinks little is to be gained by the employment of much force. If the lids are the parts to be treated the patient should be told to look down in massaging the upper lid, and up in the case of the lower lid. In each instance the other lid should be drawn away from the one undergoing massage. If the cornea is to receive attention, the patient should look straight forward. The duration of the séance must be varied according to circumstances; it should rarely exceed three or four minutes. The tip of the second finger he has found the best instrument for the application, as it can readily be used for all the movements of palpebral massage, circular, centrifugal, and centripetal. It is also well adapted to the to-and-fro pressure required to reach the conjunctival areas about the inner and outer canthi. Once daily to twice a week constitutes the range of frequency of these applications. It is better in most cases to perform a gentle, non-irritating massage of even ten minutes' duration daily than a rough, painful rubbing twice a week.

As to the strength and character of remedial adjuncts, and without discussing the action of massage, which forms no part of this paper, Dr. Wood has come to rely on variations of some half-dozen remedies. When he desires to use massage for its own sake, as he usually does, he instils a drop or two of cod-liver oil or pure castor oil, telling

the patient to wink and move the globe about so as to thoroughly distribute the oil throughout the conjunctival sac before beginning massage. For the rest, he greatly prefers oily solutions or mixtures to powders or collyria. When these oleaginous compounds are made perfectly smooth and of a consistency that permits of their ready distribution over the eyeball, it is surprising how little pain or discomfort is set up even by strong doses of such irritants as mercuric chloride, silver nitrate, etc. This is probably owing to the fact that massage has an anesthetic action, due to emptying the capillaries and lymph-vessels of their contents and to the continued pressure on the nerve endings.

Most observers find in mercurials of various strengths, combined with all sorts of oleaginous excipients, the most useful massage agents, and Wood's experience coincides with theirs. At this stage of his address he invited inspection of a brown ointment of this character that he had found very effective, and one which combines qualities of great value in ocular massage. It is nothing but the old citrine ointment — the ointment of the nitrate of mercury — made with brown cod-liver oil instead of lard oil. This, after standing exposed, to get rid of irritating nitrous fumes, for a week or ten days to the air, but not to dust, may be further diluted with from twenty-five to fifty per cent of cod-liver oil. It should be dropped from the end of a glass rod or silver probe into the lower sac. If the massage movements are begun at once, the smarting is very slight and transient, even when the stronger mixtures are employed. The subsequent action of the remedy can be modified as desired by the length of time, usually an hour, before it is washed off the eyelashes with warm water.

At the end of or during the act, combinations of the remedy with the ocular secretions — especially mucus — should be coaxed out of the sac by small "dabs" of damp cotton, or, if watery or glycerin mixtures be employed, by the irrigating stream, and the stroking movements resumed until nothing further comes away.

Dr. Wood emphasizes the contention that one rarely gains anything by inducing a marked hyperemia of the scleral or ciliary vessels by using force or by the employment of very irritating adjuncts in massage. A little smarting that passes off in five minutes, a temporary congestion of the already visible vessels, and, perhaps, some foreign body sensations, are all that is justifiable. He generalizes by saying that the patient, half an hour after the lid friction, should not experience any added discomfort. It is evidently impossible for him to even enumerate the various diseases of the lid proper, conjunctiva, lacrimal apparatus, cornea, and of the interior of the eye, in whose treatment massage has many warm friends. In a general way its most satisfactory employment will be found in chronic diseases of the eye borders and substance, in almost all those subacute and chronic infections of the conjunctivæ that one commonly includes in the title "conjunctivitis" — with or without an adjectival affix or prefix — in the second stage of acute inflammation of the conjunctiva, in most forms of ulcer of and deposit in the cornea, and it may be employed for the temporary relief of glaucoma and in some forms of retinal embolism. It is not indicated in the early stages of "acute conjunctivitis" and of "keratitis," in all forms of true trachoma, in spring catarrh — although Costomiris and others dissent from this opinion — in diseases of the iris, ciliary body, lens, choroid, vitreous, or optic nerve. Finally, while he is very skeptical of its efficacy in the absorption of the connective tissue that composes the mass of a true cicatrix, he is convinced that, in young subjects especially, it does lessen the opacity following ulcer of the cornea. If applied early it promotes the removal of the surrounding infiltrate that would otherwise remain. In the same way it is valuable in the treatment of interstitial keratitis.

THE MEDICINAL AND DIETETIC TREATMENT OF HEART FAILURE IN THE AGED.

In the course of a paper on this topic FORBES Ross tells us in the *British Medical Journal* of October 13, 1900, that there is a hitherto undescribed physiological effect of potassium nitrate and potassium citrate given in combination as a nocturnal dose, which seems to him most interesting. If given to an elderly person, even one in good health, whose hair has gone white or nearly so, it will be noticed that at the end of a week or ten days the hair over the ears, the nape of the neck, and the beard, begins to resume its former color, which progresses all over the scalp, until the color is in great part restored, but streaked with gray. This he takes as his barometer, and so long as he can see this

condition setting in and continuing he feels confident of success. Whether it is due as much to improved circulation or returning vitality as the result of better nutrition and improved dietary may be debatable; but the fact remains that he has best seen it where the nitrates and citrates were also exhibited. Any one can prove this for himself. He would here raise a warning note concerning the use of such rapid and violent arterial dilatants as the nitrite of amyl and nitroglycerin, quite apart from their value in angina, and that is, that in cases of obstruction to the venous return from the portal system, as pressure in the abdomen from accumulated fluid, or obstruction of hepatic origin, where one may be tempted to use them to relieve recurrent cardiac embarrassment, there is a great tendency to the induction of fatal hemorrhage from the bowel. For the blood is packed into the abdominal arteries and capillaries, and being unable to pass the portal veins, first diarrhea, then capillary oozing, and finally a serious hemorrhage, take place. An attack of bleeding piles with persistent headache and constant vomiting, occurring when using these nitrites, are urgent indications for prompt discontinuation. The desired benefits can be more safely and completely brought about by calomel and a nitrate. He has never himself used a nitrite with the above results, though he has seen the same on several occasions elsewhere.

Bearing in mind the central nervous degenerations of the aged, it is well to follow the advice of Alexander Morison, and endeavor to deal with the neuro-muscular rather than merely the muscular factor of heart failure. With this end in view such medicines as the phosphates and hypophosphites of lime, soda, potash and iron, cod-liver oil, and bone-marrow for those who cannot take oil, will be found most useful. The researches of Chossat and Beneké showed that in those conditions where phosphatinuria was most constantly present the administration of phosphorus was decidedly beneficial—indeed, was imperative. That a large percentage of the ash—about seven per cent—of red blood-corpuscles is potassium phosphate is, he thinks, a significant matter. The sluggish reflexes of old age call for the aid of an excitomotor and excitoreflex drug. Strophanthus itself, though strongly a muscular convulsant, is markedly assisted in its action by such a drug. This drug is nux vomica *par excellence.* Nux vomica serves to initiate the muscular contraction which strophanthus makes more decided. To do this efficiently and continuously without using up the cardiac reserve necessitates a highly nutritious and easily assimilated dietary.

Mündinger cites cases of cardiac failure with dilatation occurring in persons doing hard and fatiguing work, and at the same time living on puddings and potatoes, with no meat food. This condition is technically spoken of as "Tübingen heart."

Old persons, with edentulous jaws, badly fitting false teeth due to alveolar absorption, are too often precluded from gaining the necessary carneous nutriment so vitally important in repairing the wear and tear of an already degenerated heart muscle. They take refuge in delusive "slops" and the futile cup or so of milk, and with their resistant peripheral circulation can be aptly likened to persons doing hard and fatiguing work on only "pudding and potatoes;" in other words, sooner or later "Tübingen heart" becomes the pressing condition. We then endeavor to combat the condition by ingeniously devised invalid dietary, based on the misconception that supposed easy digestibility is all that is necessary, and pay little or no attention to what ought to be the end and aim of such a dietary. We pin our faith to one or the other of our cardiac tonics, and are surprised when they do not succeed. It is a mere platitude to state that continuous and efficient muscular action can best be sustained on muscular tissue albumen. Milk is the natural food of the infant; the prominent feature of an infant is not muscularity; muscularity is a feature of the adult. Milk is not the only food of the adult as it is of the infant; muscularity is the sole feature of the heart, therefore milk ought not to be expected to replace essential muscular albuminous food. Casein of milk is not an iron-carrying hemoglobinous albumen, therefore ought not to be expected to usurp functions for which it was not intended, though it may otherwise be useful.

The problem here is to see that an aged patient taking a cardiac tonic also gets the wherewithal to renovate the cardiac machine. This is quite apart from the generation of muscular energy, which has its origin in the muscular burning off of fats and carbohydrates with the production of carbonic acid.

Mairet and Combemale found that the urea in the urine was markedly increased by strophanthus. Ross himself, having occasion to administer strophanthus to a patient suf-

fering from senile absorption of the center of his vertebra, and who was on a fixed diet, for the purpose of measuring the amount of urea per ounce excreted, noticed that while taking strophanthus the urea ran up 2 to 2½ grains per ounce — apart from the increase in volume of the urine excreted. The urea fell 2 to 2½ grains per ounce on withdrawing the strophanthus, though the amount of urine remained the same. This was an accidental observation, and led him to adopt the plan of increasing the myosin albumen in senile cases taking a cardiac tonic, with marked success in his results. The condition of the heart as shown by the irregular and intermittent action in most senile cases is merely a chronic condition which in muscle we know as fatigue, and recognize by its weak, irregular, and irritable action. It is well to bear in mind here the file-cutter's atrophy described by Allbutt, and other degenerative conditions rendering fatigue more likely. The condition, looked at from a dietetic point of view, is not so much a question of those foodstuffs utilized to produce the contraction, but rather those used to repair and renovate the wear and tear of the muscle producing the energy.

Fatigue is possible under all conditions in the presence of abundance of the former — the carbohydrates and fats — but wear and tear is only reparable by the latter—myosin albumen. So that the chronic condition known as irregularity and intermittence can and does become a condition of acute fatigue when the heart is driven by powerful alkaloidal stimulants with a dietary deficient in certain essentials, the heart here being driven practically to a standstill by overtaxation.

The heart, more than any other organ of the body, for obvious reasons, is peculiarly fitted for and able to effect almost instantaneous metabolic reparation even under stress of work, provided the material be of proper character and in sufficient quantity. The myosin is obtained from raw minced steak extracted by cold 0.5-per-cent sodium chloride solution and then curdled out. It is tasteless when so made, and can be put into a rice or custard pudding, into milk, or made into meat panada with egg and cream. He attaches no importance to stimulant beef teas or extracts containing only excretory extractives, as they tend to call out wear and tear which they are incapable of themselves repairing. The difficulty of gastric fermentation of starchy foods in senile cases is best met for the time being by malted foods such as extract of malt, alone or in combination with cod-liver oil, and, in the case of those who cannot take oil, in combination with bone-marrow. Mellin's food, cane-sugar in small quantity, and a limited amount of alcohol either as such or in an effervescent wine, will be found useful.

Many hearts which are regarded as worn out and are regretfully abandoned as too old to continue their function can indeed, comparatively speaking, be "made young again," and the helpless excuse of inability to provide a "new heart" may indeed be nearer refutation than is generally believed, under suitable dietary and a judicious course of continuous cardiac stimulation by tonics; endeavoring under certain limitations as it were to build up anew on the framework of the old, when treating heart failure in the aged.

SOME WORK BEARING UPON THE PREVENTIVE TREATMENT OF OXALATE OF LIME, GRAVEL, AND CALCIUM.

LINDLEY SCOTT states in the *British Medical Journal* of October 13, 1900, that there are a considerable number of people, sometimes children, but generally middle-aged subjects in good circumstances, who suffer from recurrent attacks of gravel, or who after outbursts of renal colic repeatedly pass small oxalate calculi. In such subjects the prolonged administration of small doses of magnesium, say forty grains of the sulphate given in the afternoon and at bedtime, in a well diluted solution or combined with some mild diuretic such as the citrate of potassium, would seem to be a suitable form of treatment. Attention to general health, regimen, and diet must also be kept well in view.

SUBCUTANEOUS INJECTION OF ALCOHOL IN SALINE SOLUTION.

The *Cincinnati Lancet-Clinic* of November 3, 1900, has in its pages an article by EASTMAN, of Indianapolis, in which he reminds us that it has been shown by Findley and others that the infusion of hot normal salt solution, notwithstanding the immediate effect is to stimulate blood-pressure and strengthen the heart, soon perceptibly lowers the body heat by promoting the excretions. Promotion of excretion is perhaps the main indication in the treatment of toxemias. Physiological salt solution dilutes the toxins of the blood

and favors their elimination by stimulating the excretory organs.

Findley states that in hemorrhage physiological salt solution maintains circulation by adding to the volume of the circulating blood, and that in cholera and cholera infantum it serves as a substitute for the lost serum. The salt solution, therefore, acts only by increasing the circulating fluid, giving to the heart a sufficient volume of blood to propel, and by promoting excretion, favoring the elimination of poisons.

Salt solution, even when given by subcutaneous infusion, is only secondarily a cardiac stimulant. If used hot, the direct cardiac stimulation of the heart will often be more than offset by the depression resulting from increased excretion. Heat beyond body temperature is of doubtful value, and may actually oppose the action of the saline solution. It may be concluded, then, that in most cases the physiological salt solution, to secure the best results, should be used conjointly with an approved heart stimulant. The heart stimulant may be supplied by adding alcohol to the solution to be infused.

Well matured whiskey is diluted with water in the proportion of one part to twenty, and the whole rendered physiologically saline by the addition of six-tenths of one per cent (or slightly less if we wish to follow Engel's teaching as to the normal salineness of the tissues) of sodium chloride. Martin and Hemmeter found that blood containing half per cent of alcohol always diminishes the heart work, and sometimes nearly destroys it, so that not enough blood is pumped out of the left ventricle to supply the coronary artery. These observations are, however, as Wood states, clearly in opposition to general experimental and clinical evidences.

Eagelton, Dogiel, and Costello produced marked increase of arterial pressure by small doses of alcohol, and a decline of pressure by large doses. Wood observes: "It would seem, therefore, that alcohol in small doses must be considered a direct stimulant to the heart; moreover, that alcohol in overdose is a direct depressant to the heart." If injected in the proportion mentioned there is little danger of overdosing. Clinically, in the writer's hands the salt solution containing whiskey has given more prompt and more certain results than the plain physiologic salt solution. The pulse was distinctly reduced in rate and increased in force by the use of the combination in a case of serious toxemia of fulminating appendicitis. Zimmerberg, who found that alcohol reduces both the rate and force of the pulse, doubtless used toxic doses.

In toxemias suggesting the use of normal salt infusions the addition of whiskey (maintaining the physiologic salineness) is certainly worthy of trial.

It should be borne in mind that any solution heated to 98.5° F. and poured into a fountain syringe bag will be much cooler by the time it has stood for several minutes in ordinary room atmosphere and traveled through several feet of tubing. Care must be taken, therefore, that the solution is actually injected at the body temperature, which means that allowance will be made for cooling.

It will be understood that it is not advised to administer alcohol by infusion except when the condition of the patient will not allow of its introduction by any of the common routes.

TREATMENT IN REGARD TO THE EFFECT OF ANESTHETICS.

SHUTER, in writing upon this subject in *Treatment* for October, 1900, tells us that ether should never be injected subcutaneously; it should always be given through a long hypodermic needle plunged deeply into a large muscle. He has several times seen extensive and painful sloughs of the skin of the forearm caused by the neglect of this precaution. It is true other drugs act in the same way, but for obvious reasons the accident is far more common with ether than with other injections.

Every collapsed patient should be given a large hot enema. Plain water answers almost as well as anything when time is a consideration; sometimes a little salt is added (a teaspoonful to the pint) with benefit, sometimes brandy, and sometimes milk; but the value and activity of the remedy is due to the quantity and warmth of the fluid rather than to any added ingredients, which, moreover, may have the disadvantage of making the enema more likely to be rejected. Children will retain six to eight ounces and adults a pint or more of hot water at a temperature of 110° F. without difficulty.

As a last resource it is permissible to give an intracardiac injection of strychnine with a long fine hypodermic needle. Shuter has seen several lives prolonged, and at least one life saved, by this means. It has also

been suggested that tracheotomy should be performed, and the lungs freely ventilated through the opening in the trachea by artificial respiration; but the utility of this proceeding is more than doubtful.

Amyl nitrite is much used in this condition of collapse, and is invariably carried by some anesthetists, who attach so much importance to it that they would not willingly be without it. For cyanosis oxygen has been given with good results; but to Shuter's mind this remedy tends to improve the patient's personal appearance rather than to benefit his general condition.

Ether and chloroform are themselves both good stimulants—they usually improve and steady the pulse; but of the two ether is much more active and powerful, and sooner exhausts the patient. The reaction and depression which follows anesthesia by this drug is greater than after chloroform, and will call for earlier treatment. It is better, therefore, to use chloroform when the patient is likely to be collapsed afterwards.

Among minor points that require treatment are cracked lips and nostrils and sore face, due to the local irritation of the anesthetic. They are easily cured by the application of some simple ointment, such as lanolin or cold cream.

Diarrhea readily responds to ordinary remedies; of these opium is best. Ether is now so seldom administered by the bowel that the severe dysenteric diarrhea, which sometimes follows the adoption of this method, is practically never seen, and need not be here noticed.

Not infrequently some alteration in the sense of taste and smell follows the use of anesthetics. This occurs more commonly after ether than after chloroform. Not only may the acuteness of one or both be much increased or decreased, but the sense may be entirely lost; in fact, so sensitive does the mucous membrane occasionally become, that Shuter has known a patient to declare that he has been poisoned with carbolic acid when he has simply swallowed a draught of water. The condition is more annoying to the patient than alarming to the surgeon, for it usually passes off in a few hours, and rarely persists for more than a few days. The most useful remedy is a mouth-wash of lemon juice and water, or the mouth may be swabbed out with myrrh, boroglyceride, or mel boracis.

Other temporary inconveniences that present themselves at times are squint (with the consequent diplopia) and deafness. They are both uncommon, and are both easily relieved—the first by covering one eye with a bandage, the latter by blowing up the Eustachian tube with Politzer's bag.

There is one other important complication which he mentions, although it encroaches on the realm of the surgeon. That is the accidental occlusion of the larynx or trachea by a foreign body. There is, of course, only one safe treatment, which should never be departed from, for foreign bodies in the larynx and bronchi. Should the surgeon suspect a foreign body, such as a tooth, a piece of rubber, or vomit in the larynx, trachea, or bronchi, he should perform laryngotomy or tracheotomy at once and without hesitation if he fail to remove it by other means.

TREATMENT OF PUERPERAL ECLAMPSIA.

KILLEBREW writes in the *Medical News* of November 3, 1900, that in puerperal eclampsia the question will arise as to whether bleeding should be practiced in all cases. He would say that all patients except those who are extremely anemic should be bled. The withdrawal of a portion of the blood from almost any of these patients will act beneficially if some other circulating fluid is introduced to remedy the loss. Unless this fluid is introduced to take the place of the blood withdrawn, undoubtedly it would be better to bleed only those patients who are very plethoric. In the very anemic it is better to introduce the normal salt solution without bleeding. The withdrawal of blood from these patients certainly removes some of the toxins from the system and makes room in the blood-vessels for the salt solution that is to be introduced. This salt solution dilutes the remaining blood and consequently the toxins contained therein. It acts as a circulating medium and stimulates the excretory organs.

In most of the cases of eclampsia that have been treated by the use of normal salt solution it has been administered either by hypodermoclysis or by enteroclysis. The latter method is entirely too slow to be depended on after the convulsions have begun. Intravenous injection is preferable to hypodermoclysis, because it is more certain and more rapid and is not more dangerous. If the patient is edematous and the circulation sluggish, the salt solution introduced beneath the skin will probably never be taken up by the lymphatics. There is practically no danger

in introducing the solution directly into the vein, and the results are certain and rapid.

The uterus should be emptied immediately. If the cervix is not fully dilated, or nearly so, it must be manually dilated as quickly as possible. If this is impossible on account of rigidity, recourse must be had to incisions as advised by Dührssen, which is not now the formidable operation it was before the technique of vaginal work was perfected.

The order in which these means should be employed is as they have been given: (1) Control convulsions with chloroform; (2) bleed the patient and give intravenous injection of normal salt solution; (3) empty the uterus.

Perhaps most operators empty the uterus before giving the infusion of normal salt solution. It frequently requires as much as two hours or even more to empty the uterus, while the infusion of normal salt solution can be given in a few minutes. In some cases the toxemia is so profound when the patient is seen that she will be dead by the time the uterus can be emptied. In these cases there is an almost complete absence of activity on the part of the excretory organs. It seems to Killebrew that it is better to give the intravenous infusion of salt solution first and allow it to be doing its work while the uterus is being emptied. He saw a patient a few months ago who died within four hours after the first convulsion. The physician in charge reached her two hours after they began. He first emptied the uterus. When this was accomplished life was almost extinct. Preparations were made at once to give an infusion of salt solution, but the patient died before the vein could be found.

He recalls another instance where the patient had seventeen convulsions during a few hours. The surgeon in charge at once gave an intravenous infusion of normal salt solution. No other treatment was given. The patient did not have another convulsion, and was perfectly conscious in a few hours. The uterus was emptied the next day. If the physician in charge of the first patient had given the infusion before he emptied the uterus the result might have been different. If there are enough assistants at hand both operations can go on at the same time, with great advantage to the patient's condition.

After these measures have been taken the colon should be thoroughly irrigated. If the convulsions recur and are mild, they should be controlled with chloral given in an enema. Should they again become severe another infusion of normal salt solution should be given. This will rarely be necessary. During convalescence the patient should be confined to bed and the bowels and other excretory organs kept active. The diet should be restricted to liquids for a week and then gradually increased as the physician thinks best. A high saline enema should be given twice daily. All excitement, worry, and depressing influences are to be avoided. Callers should not be allowed, and the nurse should make special efforts to keep the patient in a buoyant frame of mind.

Veratrum viride and chloral have given good results in the practice of many physicians. Killebrew has not had any experience with the former. The latter will control convulsions in many cases, but it does so more by diminishing the excitability of the nerve centers than by removing the causes of the convulsions, although it probably causes some increase in the secretion of urine. Practically the same may be said of veratrum viride. Pilocarpine is dangerous because of the marked depression on the heart, and its use is never justified in this disease. Morphine undoubtedly has some temporary effect upon the convulsions, but it should never be used. Like chloral, it unquestionably has a quieting action on the nerve centers, but its effects on the various secretions are important and not to be underestimated. Instead of assisting in the removal of the causes of the convulsions, it retards it by paralyzing all the excretory organs, with the possible exception of the skin.

That all methods of treatment heretofore applied in this disease have been unsatisfactory is evidenced by the fact that the mortality has been about twenty-five per cent. Certainly this is sufficient evidence to show that there is room for improvement. Statistics based on the method of treatment given in this article are not large enough to form a very correct idea as to its efficiency, but it is a rational, common-sense method of procedure, and offers a hope of better results in the future, especially when improvements in technique have been thoroughly worked out.

THE HARVEIAN ORATION ON TRANSFUSION.

ANNANDALE contributes this oration to the *Scottish Medical and Surgical Journal* for September, 1900. The conclusions he has come to in regard to transfusion are these:

1. That it may be a valuable aid in saving life in the case of patients suffering from serious loss of blood, provided they show no signs of reaction after the ordinary means have been carefully tried.

2. That the best form of transfusion for ordinary use is the injection of human blood mixed with a solution of phosphate of sodium and kept at a proper temperature, so as to prevent clotting.

3. That if the former method cannot be properly carried out, the injection into a vein of saline solution (chloride of sodium) is the next best procedure.

Annandale needs scarcely say that both of these procedures must be carried out with the most strict and careful antiseptic precautions.

4. That intraperitoneal injections of warm water, or by warm saline solutions, are most likely to be useful in cases where the abdomen has already been opened, for without an opening there is always risk of injuring the intestines or other internal organs with the trocar and cannula.

5. That injection of warm water, or of warm saline solutions into the rectum, or into the cellular tissues, is a safe and simple procedure, which may be usefully employed in any sudden emergency.

THE PHARMACOLOGY OF THE JABORANDI ALKALOIDS.

MARSHALL states in the *British Medical Journal* of October 13, 1900, that until recently three alkaloids were supposed to exist in jaborandi leaves—pilocarpine, pilocarpidine, and jaborine. Pilocarpine exerts a stimulating influence on the nerve terminations of involuntary muscle and most secreting glands; pilocarpidine was believed to produce a similar but somewhat weaker effect; while jaborine was said to antagonize these substances. The last named compound was isolated by Harnack and Meyer; they did not obtain it in a pure form, although they state that in constitution it is closely allied to pilocarpine. Jowett has been unable to isolate any such body, and from the crude products he sent Dr. Marshall he has failed to obtain any atropine effect. As Harnack and Meyer undoubtedly obtained an atropine action, he is at present unable to explain their results, but criticism he leaves until his own experiments are published in detail.

From different specimens of jaborandi leaves, Jowett has isolated pilocarpine and a small amount of an isomeric alkaloid, isopilocarpine, and from true jaborandi leaves a small quantity of pilocarpidine. Jaborine has been carefully looked for, but without success. The substances submitted to Marshall as possibly containing this body invariably turned out to be mixtures of pilocarpine and isopilocarpine with some resinous substance. And this seems to be the composition of the jaborine sent out by Merck; it gives a weak pilocarpine effect, no atropine action.

As both pilocarpine and atropine affect the same structures—certain nerve terminations, or what we may regard as such—in various parts of the body, it is evident that a comparative investigation of such substances might be carried out in a variety of ways. Marshall has chosen their influence on the heart as being the simplest and, he thinks, the most exact. These results were controlled by observations on the excretion of saliva, and by experiments with minimal dose on himself. The animals used were rabbits and cats. Both were anesthetized with chloroform before the operation was commenced. In both the blood-pressure was taken from the right carotid artery, and the injection cannula tied into one of the right facial veins, so that its mouth projected into the external jugular vein. Sometimes one vagus, sometimes both vagi, were ligatured and cut. After obtaining a constant vagus effect, a solution of the drug was injected and the vagus again stimulated.

After the injection of pilocarpine the heart-beats became slower and the blood-pressure fell, and after a short but variable interval both gradually returned to normal, the blood-pressure sometimes slightly beyond it. During the rise of the blood-pressure the vagus was generally less irritable, but on reaching its normal height it became, for a short time, slightly more sensitive. This effect is produced by an injection of one-half to one cubic centimeter of a 1-in-5000 pilocarpine solution; such a dose also produces distinct salivation. After still larger doses the heart is stopped permanently and the respiration is paralyzed. By careful gradation of the dose, however, the vagus terminations may be paralyzed, and then large doses can be given without much effect upon the heart.

Isopilocarpine produces a similar but much weaker effect to pilocarpine. In the rabbit its action on the heart seems to be compara-

tively less powerful than its influence on the salivary glands, but in cats and man this is not so obviously the case. Roughly, we may place its activity as one-eighth to one-tenth that of pilocarpine.

Pilocarpidine is very slightly active; it may almost be said to be inactive. Solutions of 1 in 200 injected into the circulation cause a slight fall of blood-pressure, and in cats slight salivation.

In all experiments the nitrates of the alkaloids were employed, but in all cases the dose is given as pure alkaloid. In the experiments on himself the substances dissolved in water were taken by the mouth. His endeavor was to obtain the least dose causing salivation and perspiration, and under the conditions of the experiment this was obtained by pilocarpine 0.005 gramme, isopilocarpine 0.04 gramme, jaborine (Merck) 0.09 gramme. Pilocarpidine 0.38 gramme (4 grains) did not produce distinct salivation or sweating, but it caused slight nausea. It may also be said that the resin of jaborandi in doses of two grammes (31 grains) is inactive.

INFUSION OF NORMAL SALT SOLUTION IN DISEASE.

HAYNES tells us in the *Southern California Practitioner* for October, 1900, that since the middle of the seventeenth century many substances other than remedies used hypodermically have been injected into the circulation in the treatment of acute anemia from hemorrhage, shock, septicemia, uremia, comatose state in diabetes mellitus, and the toxemias of infectious fevers.

Blood direct from donor to patient, blood defibrinated, blood mixed with liquor ammonia, blood mixed with sulphate of potassium and in varying quantities with saline solutions, milk and saline solutions, the latter varied in number and amount of ingredients, but all based upon the normal blood serum, have at different times been used.

There are certain physicians of large experience who add other salines to the normal salt solution.

In cholera Dr. H. A. Hare, of Philadelphia, believes the ideal solution to be:

Calcium chloride, 0.25 gramme;
Potassium chloride, 0.1 gramme;
Sodium chloride, 9 grammes;
Sterilized water, c. m., 100 grammes.

Professor Hayem, the French clinician, uses:

Sodium sulphate, 10 grammes;
Sodium chloride, 5 grammes;
Distilled water, c. m., 1000 grammes.

Dr. Heyse, of Hamburg, adds 1¾ drachms of alcohol to one quart of normal salt solution.

Dr. Gaillard, of Havre, adds 2½ drachms of sulphate of sodium to one quart normal salt solution.

Dr. W. W. Johnson, Washington, D. C., uses forty-five grains each of hyposulphite of soda and carbonate of soda, and one drachm of the chloride to one quart of water.

Dr. Nicholas Durantz uses:

Chloride of sodium, 5 grammes;
Hydrate of sodium, 1 gramme;
Sulphate of sodium, 2.5 grammes;
Water, c. m., 1000 grammes.

Dr. Linns uses:

Sodium chloride, 40 grains;
Sulphate sodium, 2½ drachms;
Distilled water, 1 pint.

In pneumonia Dr. Pellegrene uses:

One-per-cent solution of chloride of sodium;
Half of one-per-cent of bicarbonate of soda.

Dr. Galvanzi, of Modena, claims to be universally successful with a mixture of:

Sodium chloride, 0.75 gramme;
Sodium bicarbonate, 0.50 gramme;
Water, 6¼ fluidounces.

In diabetic coma Dr. Herzog, of Berlin, uses from three to five per cent of bicarbonate of soda or chloride of sodium.

Dr. Dickinson, of London, uses a solution of sodium chloride, potassium chloride, sodium phosphate, sodium sulphate, and sodium bicarbonate.

Dr. Lepine uses:

Sodium chloride, 1 drachm;
Sodium bicarbonate, 2½ drachms;
Water, 1 quart.

But thousands of experiments upon human beings and upon animals by hundreds of experimenters have proven most conclusively that for efficiency, freedom from danger, and ease of administration the subcutaneous injection of normal salt solution (hypodermoclysis), six drachms of sterilized salt to one gallon sterilized water, at a temperature of from 110° to 120° F., excels any and all things that have ever been used to relieve

those suffering from shock and from the effects of hemorrhage, and as an eliminant in septic and toxic conditions.

When life is almost extinct and the patient's vitality so low that the probability of absorption from the subcutaneous spaces is slight, or where the tissues are edematous, then the solution should be injected into a vein, although the dangers of injection of air, too rapid distention of heart, phlebitis, thrombosis, and embolism should always be borne in mind.

THE TREATMENT OF GOUTY ECZEMA.

MARTYN states his views as to this point in the *British Medical Journal* of October 13, 1900. He speaks, first, in regard to the clothing of a patient subject to attacks of eczema. The object to be obtained is the production of a healthy action of the skin and the avoidance of extreme loss of heat from sudden chilling of the surface; while, at the same time, irritation is kept at a minimum. This is one of the most essential points in the treatment of gout and gouty eczema. As little change as possible should be made in the winter and summer clothing, and such change should be confined to the outer coverings. The underclothing must not be varied. Wool, if it can be borne, is good, but has many disadvantages; it is apt mechanically to irritate the skin. Washing and sweating produce in it a change of texture, rendering it felt-like. In this condition it absorbs the sweat instead of allowing the moisture-laden hot air to slowly escape without entirely condensing. This, of course, applies more especially in hot weather, and when exercise is taken in cold weather. The wet clothing cools and produces a serious chilling of the surface, and the acrid sweat, unable to escape or be absorbed, reacts on the skin and produces irritation, and finally eczema. A more rational form of underclothing is undoubtedly cotton in the cellular woven form. Such a clothing allows of a certain amount of ventilation of the skin, while at the same time it protects against undue chilling; he has repeatedly found that patients who cannot tolerate wool next to the skin wear cotton with comfort and benefit. One very essential point in the clothing is the protection of the extremities. Gouty subjects are extremely prone to peripheral stasis of circulation, evinced by cold, blue hands and toes, probably accounting for the irregular nutrition of the nails, the palmar discoloration of the hands, the chilblains, the early alopecia, and all these symptoms of epithelial degeneration. Hence, vests should have long sleeves, mittens or gloves should be worn out-of-doors, and warm socks, with spats over the boots in winter. The success of treatment depends on such minutiæ.

Climate in gouty eczema is of great importance. Of all localities the sea is the worst—as, indeed, it is in all forms of gout. Martyn believes this to be partly due to the fact that the action of the liver is deranged, partly due to the presence of sodium chloride in the air, and partly to the sudden daily changes of temperature produced by the land and sea breezes in the morning and evening. The best climate is an equable, fairly bracing one where the action of the skin will not be suddenly interfered with—such a climate, in short, as is difficult to be found in England.

As regards the diet of a patient suffering from or liable to gouty eczema, it is not necessary to detail here the pros and cons of each article of food in gout. Suffice it to say that the diet must be a typical gouty diet with the minimum proteid and starchy foods, and all those articles which produce an acid fermentation. There are, however, some forms of food which in eczema are particularly irritating, and which must be altogether withheld. First and foremost is alcohol; then all forms of raw or cooked fruit containing much fermentable sugar or acid, especially strawberries, gooseberries, apples, lemons, and rhubarb. All stimulating foods should be avoided. The patient himself is the best judge of many articles of diet, as those injurious will never fail to make the burning and itching worse.

Next, as regards the value of internal remedies in gouty eczema. The text-book statement on this point usually is that those drugs which are used as gout specifics, such as colchicum, lithia, or piperazine, should be given. Personally, Martyn has never seen them have the slightest influence in controlling or curing the eczema. Of real value are those drugs which benefit dyspepsia and increase the alkalinity of the blood, such as bismuth, the alkalies, and the bromides. Antimony will at times relieve the intense itching, but when the patient is kept awake and tortured by the eczema, when the temptation to scratch or rub is too strong to be resisted, and when there is no strong contraindication, morphine should be injected hypodermically. By so doing we secure a peaceful night, and

place a moist acute eczema under the most favorable conditions for healing. Arsenic is a difficult weapon to handle. Roughly speaking, the less irritation there is, and the more the eczema inclines to the dry and scaly type, the more will arsenic be found of value. The daily use of some mineral aperient water, such as Carlsbad water, taken in the morning when fasting, should never be omitted.

More important than the internal medication is the local treatment of the eczema. For the very acute moist inflammatory type soothing lotions containing lead and opium should be constantly applied. As soon as the irritation begins to disappear, and the exudation to lessen, Martyn always substitutes a dusting powder of carbonate of magnesium and fuller's earth. For the dry, irritable type, he finds nothing excels the old-fashioned tar in the form of the liquor carbonis detergens, and it should be used in a very diluted form as an ointment, ten minims of the liquor to an ounce of lanolin. The great area of the body which eczema so often occupies renders the employment of lotions and ointments difficult, and it is in these cases that the employment of baths is so valuable. The time-honored tradition that all eczema is to be kept religiously from water is still fostered by many patients, and it is one of the hardest points to decide whether an eczema will be made better or worse by immersion in a bath. His experience teaches him that the amount of irritation is not the criterion of this point. Intensely itching eczema is frequently soothed and ultimately healed by such treatment. But when there is much redness or inflammation or exudation, baths only serve to make matters worse. A lime sulphated water, like the Bath water, is admirably adapted for cases of dry, irritating, scaly eczema. Too much care cannot be taken over the detail of the bath. This should never be given at a temperature exceeding 98°, and the usual hot pack after the bath must be omitted. The whole body must be very carefully dried and powdered after the bath, and the patient must go straight home after thoroughly cooling, so as to avoid any chill to the surface. In the more obdurate chronic types he orders the addition to the Bath mineral water of sulphur water prepared by boiling sulphur and slaked lime.

This is by far the best preparation of sulphur to use, as it closely resembles the natural sulphur springs. It is easily made, and will keep for a considerable time if it be kept cool and the air excluded.

One word as to the treatment of gouty eczema in the aged. For them severe treatment, such as baths and rigorous dieting, is out of the question, and yet they more especially require soothing treatment, or their strength soon gets exhausted by sleepless nights and days of torment. The treatment must, as a rule, be simply palliative. A generous diet with a small amount of stimulant is necessary when the patient gets worn out. Daily sponging with warm sulphur water is of the greatest value, and the free use of a dusting powder after drying. Sleep must be procured, if necessary with bromides.

SOME NOTES ON THE TREATMENT OF RHEUMATISM.

A. STENGEL writes in the *Medical News* of December 22, 1900, of his use of various drugs in this disease. He begins by stating the generally accepted fact that of the drugs that have been used in the treatment of rheumatism, the derivatives of salicylic acid deservedly occupy the first place in professional estimation. Salicylic acid is not, as far as we know, a specific. In many cases it fails entirely; in a greater number it is beneficial in relieving pain and other symptoms, but fails to give complete relief; in some cases its action is so immediate and final that the term specific seems almost justified. How much this difference in action of the drug depends upon etiologic differences in particular cases is unknown. The possibility of such an explanation of the failure or success of the treatment cannot, however, be denied. Dr. Stengel then recalls an experience in a case of rheumatic pleurisy in which the fluid in the chest disappeared with remarkable rapidity after the administration of salicylate of soda, and of other less striking but suggestive results under similar circumstances. The efficiency of the drug in rheumatic pleural effusions has been too frequently observed to permit the belief that the results have been mere coincidents; and the rapidity and thoroughness of action indicate a relationship of the drug to the disease or some cases of the disease that warrants a place near to the remedies we term specifics. One is reminded of the action of potassium iodide in actinomycosis, or of arsenic in leukemia and pernicious anemia.

If, however, the salicylic acid preparations

are not specific, they at least relieve pain and suffering in a majority of cases, and thereby benefit the patient's general condition. This is doubtless advantageous to the end of helping the combat on the side of the systemic resistance to the infection. Of the preparations of salicylic acid Stengel says little, but refers especially to the external applications of one form, the salicylate of methyl or oil of wintergreen. The sodium salt is probably most frequently employed for internal use, and, excepting in rare instances when some other form is more acceptable to the stomach, proves satisfactory if the internal administration of salicylates is likely to be beneficial in any form. The Germans advise large doses, and though these may cause toxic symptoms, he has found them more satisfactory than small doses spread over a longer time. If salicylic acid is likely to prove useful, it will do so in a comparatively short time. The administration of a dose of ten grains of the sodium salt three times daily does not suffice. When this plan has been used the drug has relieved pain scarcely at all, and has had no appreciable effect on the course of the disease. From 100 to 150 grains should be given in twenty-four hours for two or three days if symptoms of salicylism have not appeared; after that period the dose may be reduced one-half, and after one week's treatment the drug may often be discontinued. Persistent use of the remedy undoubtedly causes depression and other complications. The same general principles apply to the internal use of oil of gaultheria, salicin, ammonium, strontium salicylate, etc.

The simultaneous or separate use of salicylate of methyl, applied to the skin in the form of a ten- or twenty-per-cent ointment and covered with lint and oiled silk, is extremely satisfactory. Dr. Stengel has repeatedly tested the pain-allaying power of such local treatment, comparing it with simultaneous applications of lead-water and laudanum, Fuller's lotion, and the like. Invariably the ointment has given the greater relief, and the systemic action of the drug was undoubtedly exercised, as abundance of salicyluric acid in the urine indicated the absorption of the drug.

The relief of pain secured by the internal and external use of salicylates is beneficial in several ways, the chief of which is that such freedom from pain causes rest of the diseased parts by relaxing muscular spasm, and at the same time improves the general condition of the patient. Some rest may, however, be obtained in another and better way, viz., by the use of splint or plaster casts. For several years past Stengel has treated cases of acute rheumatism in this way. His first experiences were with cases of gonorrheal rheumatism, but more recently he has practiced plaster fixation in cases of ordinary polyarticular rheumatism. The plaster cast almost invariably relieves pain by reducing the muscular spasm and securing immobility, and its application is generally followed by rapid subsidence of the local signs of inflammation. The process of applying the cast has never been so painful to the patient that it had to be abandoned, there has never been any increase of swelling after its application, and it has not, therefore, been necessary in any case to remove it on account of pressure. On the contrary, it has often happened that a new cast was needed in two or three days on account of the reduction in the size of the joint.

In very acute inflammatory cases Stengel has in the beginning covered the joint with lint on which salicylate of methyl ointment was spread, and has then fixed the part with a light cast, removing this in twenty-four or forty-eight hours. The ointment may cause irritation if it is allowed to remain too long in close apposition with the skin. In a few instances of rather subacute character it has proved useful to cut the cast so that daily dressings might be applied to the joint. In none of his cases has it been necessary to continue fixation so long that there has been any danger of ankylosis. As soon as the inflammation has measurably subsided it is advisable to discontinue the cast, and in but few instances has the condition relapsed so as to require reapplication of the plaster dressing. Occasionally he has allowed the cast to remain for considerable periods, removing it from time to time to examine the joint or practice gentle manipulations.

THE TREATMENT OF BRONCHITIS IN INFANTS AND YOUNG CHILDREN.

S. S. ADAMS states in the *Medical News* of December 22, 1900, that attempts to abort bronchitis by a hot foot-bath, free purging, and profuse sweating are seldom successful. Such measures may prove injurious unless extra precautions are taken to prevent the child from taking additional "cold" by kicking off the bed-coverings.

Local measures when judiciously applied are often beneficial. Poultices are objec-

tionable because they must be renewed so frequently that the child's rest is disturbed. The effect of the poultice is derived from a chest-jacket of cotton covered with cheese-cloth or oiled silk. In many cases, especially where the heart's action is feeble, counter-irritants applied to the chest relieve pulmonary congestion. The turpentine stupe, or, as many prefer, the weak mustard paste, may be placed under the jacket until the skin becomes sufficiently irritated, when it should be removed; it may be reapplied every six or eight hours. Blistering is never necessary.

Inhalations of water or medicated vapors are valuable in relieving the embarrassed respiration by softening the thick bronchial secretion and applying the medicament to the inflamed part. For infants and very young children this can be accomplished best by placing them under a tent, into which the steam from a boiling kettle can be conducted. Older children will inhale the vapors from any one of the many inhalers offered for sale in the drug stores. When neither of these methods is practicable the air of the room can be saturated with moisture by having a kettle or pan of water constantly boiling near the child's bed. The following medicaments may be vaporized: Tincture of benzoin (compound), eucalyptol, carbolic acid, creosote, turpentine, and terebene. Direct inhalation should last about ten minutes every hour or two; indirect (*i.e.*, through atmosphere of the room) vaporization may be kept up until the atmosphere of the apartment is saturated with the medicament.

Expectorants are not well borne by infants, and much care should be exercised in their selection. In the dry stage of bronchitis small doses of ammonium iodide in an agreeable menstruum, to which a few drops of syrup of ipecac are occasionally added, will usually hasten the secretion, thus relieving the swelling of the mucous membrane, rendering the cough less painful, and lessening the frequency of respiration. In older children the same drugs in larger doses are beneficial. When the secretion becomes very profuse, the syrup of hydriodic acid is valuable.

Opiates of every description should be withheld as long as possible from infants; but when the cough is harassing and the sleep disturbed, small doses of codeine or a few drops of paregoric every two hours, for a few doses only, are justifiable. The older child is often benefited by a small dose of Dover's powder, or codeine added to a palatable mixture. The practice of adding some form of opium to every so-called "cough mixture," regardless of the age of the child, is fraught with much danger. We can relieve or stop the cough, but by so doing we destroy one of nature's safeguards by which the secretions are removed and the engorged bronchioles freed.

Emetics are seldom indicated, unless the exudate is so profuse or the stomach so distended with gas from undigested food as to embarrass respiration. In the very young and feeble either of these conditions may be promptly overcome by an emetic of the syrup or wine of ipecac, which is seldom attended by depressing effects.

Cardiac stimulants are required in most severe cases, especially in the feeble. Alcohol in some form is the best and is well borne by children. In cases in which the heart does not seem strong enough to overcome the intrathoracic engorgement, a valuable adjuvant will be found in nitroglycerin, which is found most effective when administered hypodermically. While it is injudicious to begin stimulation too early, it would be equally so to delay it until the heart is too debilitated to respond to the strongest stimulants. In bronchitis, or in pneumonia, the heart's action should be jealously guarded.

Respiratory stimulants of strychnine and atropine are required in a very small percentage of cases. They may bridge over the crisis, but should be watched by the physician, and never entrusted to the discretion of either nurse or layman.

Severe attacks of dyspnea and feeble respirations must be promptly met. The passive pulmonary congestion and the overfilled right heart must be relieved, and the compressed and empty air vesicles reinflated. All of these indications may be fulfilled by Jacobi's plan of flagellation or spanking, which serves the twofold purpose of causing the infant to cry, which induces full, deep inspirations distending the air vesicles, and reddening the surface, which attracts the blood from the distended intrathoracic blood-vessels. The same results may be obtained by H. C. Wood's method of alternate hot and cold douches to the chest. Much less heroic, and probably quite as effective as either of these methods, is the general hot bath (110° to 120° F.); mustard may be added to the water. Oxygen by inhalation may mitigate the feeling of suffocation, but the relief is only temporary.

THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

The *Medical Record* of December 22, 1900, contains an article by COHN, of San Francisco, on this topic. He reminds us that in 1885 the Vienna surgeon Mosetig recommended lactic acid in tuberculous affections of the knee. Impelled by Mosetig's success attendant upon the use of the acid, Krause, struck by a fortunate inspiration, in that same year made a trial of the remedy in the throat. He began to cauterize the tuberculous ulcers with lactic acid, and with success exceeding anticipations. His reports were so glowing that a large number of laryngologists immediately availed themselves of the method, with results equally good, and from that day to this lactic acid has remained by far the most efficacious remedy in laryngeal phthisis. As Schech says: "It acts almost specifically in that, while it attacks the morbid tissue, it leaves the healthy tissue intact." If any agent can bring about the cicatrization of a tuberculous throat ulcer, it is this acid. Its employment is limited, however, to open processes—that is, to ulcerated surfaces—and does not extend to non-ulcerated infiltrations, for if the surface be intact it cannot penetrate to the morbid tissue underneath. Moreover, the method of application must be rational. The treatment of tuberculous ulcers with twenty- to thirty-per-cent lactic acid, as often practiced, is unavailing, as that concentration is too weak to accomplish the purpose intended. One must use a fifty- to eighty-per-cent solution, which must be rubbed so energetically into the ulcer that a brownish or blackish eschar results. For this reason Dr. Cohn agrees with Lennox Browne in thinking the advocacy of application by means of the laryngeal spray ill advised. Some apply the acid daily or every second day; this is an entirely irrational procedure. The application should not be repeated until the eschar sloughs through reactive irritation—a process requiring from seven to fourteen days. In the meantime, insufflations of iodol, iodoform, or another disinfecting powder are in place. Preceding every cauterization a thorough cocainization is necessary, a fifteen- to twenty-per-cent solution being the strength generally required. On the detachment of the eschar the surface is smooth, the superficial granulations having been actually destroyed by cauterization. The chief deposits, however, are still below, and the cauterizing procedure must therefore be repeated four or five or a dozen times, often through many months, before we can hope to have entirely eliminated the morbid tissue.

And yet it is not permissible in every case in which there are tuberculous ulcers in the larynx to apply lactic acid without further consideration. In this Bosworth goes too far, in Cohn's estimation, in stating that "in view of the excellent results which have followed the lactic acid treatment, we have not done our full duty in any given case without fully testing its efficacy." Several strict indications must first be fulfilled. In the first place, the ulcers must be circumscribed. If, for instance, the posterior wall, both vocal cords, and one or both arytenoid cartilages be already ulcerated, lactic acid is strictly forbidden, for such ulcers do not heal, even with lactic acid. One ulcerated vocal cord or an ulcerated posterior wall has a fair chance of healing; these additional ulcers have practically none whatever. In the second place, the general condition must be good. If the pulmonary process be already far advanced or advancing rapidly, if the appetite be poor, or if the patient does not tolerate cocaine, cauterization should not be undertaken. If the patient's appetite be ruined with cocaine, the greatest harm is done for him, for as long as the tuberculous subject's appetite remains good, there is always hope of eradicating the disease, or at least of checking its progress. So much for tuberculous ulcerations. Dr. Cohn repeats that lactic acid is the sovereign remedy in their treatment; that, as J. Solis Cohen says, there is nothing else which bears comparison with it; that it acts almost specifically; and that if the above mentioned indications be fulfilled, its use is imperative.

We now come to the tuberculous infiltrations. After the introduction of lactic acid in the treatment of tuberculous ulcers, Heryng hit upon the idea of treating tuberculous infiltrations by the same means, cauterization being preceded by multiple scarifications. The object of these was to convert the non ulcerated infiltration into an open process, into which the acid could then be rubbed. Although diminution in size of the infiltration and cicatrization of the wound frequently followed, Heryng soon saw the inadequacy of the procedure, and devised in 1887 the method upon which the entire present surgical treatment of laryngeal phthisis is based, and that is curettage. The single curette is an oval sharp spoon, the curve of which is adapted to the various

regions of the larynx. With it the tuberculous infiltrations are thoroughly scraped with the intention of eliminating the tuberculous products and leaving a wound which later cicatrizes. There are, however, certain parts of the larynx to which, on account of their lack of tenseness, we cannot apply the single curette; these are the epiglottis, the aryepiglottic folds, and the posterior wall. For these parts we use the double curette; it acts, moreover, more energetically than the single curette, and is therefore adapted to those infiltrations, irrespective of their localization, which by reason of their hardness do not yield to the single curette. It is needless to add that before the employment of the curette the larynx must be thoroughly cocainized, for which purpose, as in the application of lactic acid, a fifteen- to twenty-per-cent solution is necessary. On account of the sensitiveness and the excessive reflex irritability of the posterior wall, this region is the most difficult to manage. With the single curette hemorrhage is slight, with the double curette more profuse. This danger is, however, not very great. In case of trouble a mixture of lactic acid and liquor ferri sesquichloridi in equal parts will be found serviceable. After the operation insufflations of iodoform, iodol, aristol, or a similar disinfecting powder, are all that is necessary. The reaction is slight; at worst the patient complains of rawness in the throat and painful deglutition, sometimes of headache and slight fever. As some one has said, many stand the operation better than the cocaine. In general seven to fourteen days must elapse before the operative procedure is repeated. As to the indications for curettage, they are the same as for cauterization with lactic acid, only that in the case of curettage they are, if anything, still stricter.

In conclusion Dr. Cohn gives a brief recapitulation, and divides laryngeal tuberculosis as regards its therapeutics into three stages. In the first stage, with the exception of a circumscribed infiltration or ulceration, the larynx is healthy. In this stage (the only one in which we can hope for a permanent cure) the treatment consists in curettage in case an infiltration be present, in cauterization with lactic acid in case an ulcer be present. If the general condition, especially that of the lungs, be good, these procedures are imperative. As above stated, they must be repeated at intervals of one to three weeks until the diseased tissue is completely removed.

In the second stage the larynx presents extensive infiltrations or ulcerations. Here we can no longer hope for a complete elimination of the morbid tissue; in other words, if we get the case in this stage we can no longer count on a cure. Here the antiseptic treatment comes to the front, for our main aim is to prevent secondary infection. The mildest method is by means of antiseptic inhalations; whether we use one- to three-per-cent carbolic acid, two- to four-per-cent boracic acid, or one- to two-per-cent of lysol is of no consequence. If the epiglottis will permit an inspection of the interior of the larynx the antiseptic swab is still more efficacious, for which a ten-per-cent solution of carbolic acid in glycerin can be recommended. More in favor than this is a ten- to thirty-per-cent solution of menthol in olive oil, which acts both antiseptically and analgetically. As above outlined, by means of this antiseptic treatment we forestall secondary infection and thereby the terrible dyspnea and dysphagia of the last stage.

And, finally, if we see the case first in this last pitiful stage all that it is in our power to do is to treat it symptomatically, to administer a morphine powder before each meal, or better still to apply a ten- to twenty-per-cent solution of cocaine to the pharynx. In impending suffocation tracheotomy must, of course, be performed.

A PLEA FOR LARGER DOSES OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

McCollom, of Boston, writes in the *Boston Medical and Surgical Journal* of December 25, 1900, with the object of urging the better use of antitoxin in treating diphtheria. After giving many interesting facts he concludes by saying that many cases might be cited in which large doses of antitoxin were given with satisfactory results, but enough has been said to prove that small doses of antitoxin are of little avail in the treatment of grave types of the disease; that in order to obtain the best results the serum must be heroically administered. It is true that all of the patients to whom large doses of antitoxin have been given have not recovered, but so many have that one must be convinced that larger doses are imperatively demanded in very severe cases. When death has occurred, it has been from nerve degeneration or from sepsis. In no instance was there any injurious effect produced by either

the large or small doses of antitoxin. Albuminuria, although present in many cases, cannot be attributed to the serum, as albuminuria is one of the most frequent symptoms in diphtheria. Heart complications of a serious nature have not been so frequent in the 7657 patients treated at the South Department as would have been the case in a like number treated without antitoxin. Paralysis, although occurring in the severer cases, has not been so prominent as it would have been in an equal number of cases treated without antitoxin. Urticaria and arthralgia are certainly very annoying complications, but they do not imperil the life of the patient, and are therefore not worthy of being considered an argument against the use of the serum. It has been observed that the serum from certain horses caused a larger percentage of urticaria than that from others. There is no explanation of this fact. It is to be hoped that in the future there may be some way of eliminating this troublesome symptom. The time in which an urticaria may appear varies from ten minutes after the injection of antitoxin to three weeks. Abscesses after the injection should be of rare occurrence, and when they do appear are an indication of some error of technique in the sterilization of the syringe or in the quality of the serum. In the last 15,000 injections given at the South Department, an abscess occurred twice.

It must be conceded that diphtheria at the outset is a local disease caused by the bacillus of diphtheria. The constitutional symptoms are the result of the extension of membrane and the formation of toxin. If the local process can be stopped, if the membrane can be prevented from extending, the life of the patient will be saved. Although different remedies were used to prevent the extension of membrane before the advent of the antitoxin, the death-rate from diphtheria remained about the same until the introduction of antitoxin. Before the days of antitoxin there was no method of limiting the extension of the membrane. It is true that the membrane could be torn off, leaving a raw surface, but the organism of diphtheria would not be destroyed, and therefore the membrane would reform. The number of different applications to the diphtheritic membrane was so great as to prove that no one of them was satisfactory. No germicide can be of sufficient strength to effectually destroy the bacilli of diphtheria without causing destruction of the mucous membrane, and thus opening a fresh field for the growth of the organism. In the light of our present knowledge regarding the etiology of diphtheria, there can be no more unscientific method of treating the disease than by the application of caustics to the membrane, with the hope of destroying it. The experiments of Roux and Yersin proved conclusively that the bacilli of diphtheria would not grow on intact mucous membrane, and, therefore, the less the throat of a patient ill with diphtheria is abraded the better.

Of the 5657 cases of diphtheria treated in the five years that the South Department in Boston has been open, 772, or 10.08 per cent, required operative interference. In about one hundred instances there were marked laryngeal symptoms, but operative interference was not required, the stenosis being relieved by antitoxin. The use of steam for the relief of the stenosis has been discarded except in cases of tracheotomy, because it was found that the relief was not sufficient to offset the debilitating effects of the steam on the patients. The sublimation of calomel was tried in many cases, but without satisfactory results, as the patients almost invariably required operation. To discuss the relative advantages of intubation as compared with tracheotomy would prolong this paper to an unseemly length, but a death-rate of thirty-four per cent in intubation cases as compared with the death-rate reported in tracheotomy cases shows conclusively the advantage of intubation over tracheotomy.

From a comparison of the health reports of Boston before and after the introduction of the antidiphtheritic serum, from a comparison of the health reports of other cities, from a study of hospital reports, from a clinical observation of nearly 8000 cases of diphtheria, the following conclusions are justifiable:

1. That the ratio of mortality of diphtheria per 10,000 of the living was very high in Boston previous to 1895.

2. That the ratio of mortality per 10,000 has been very materially reduced since the introduction of antitoxin.

3. That the percentage of mortality in the South Department is lower than that of any of the hospitals taken for comparison.

4. That since larger doses of antitoxin have been given the death-rate has been materially reduced, this reduction having occurred in the apparently moribund cases.

5. That no injurious effect has followed the use of the serum.

6. That to arrive at the most satisfactory results in the treatment of diphtheria, antitoxin should be given at the earliest possible moment in the course of the disease.

SUGGESTIONS FOR THE PRACTICAL TREATMENT OF TYPHOID FEVER.

EWART reminds us in *The Lancet* of December 8, 1900, that until the time shall come for the prevention and cure of typhoid fever by germicides the chief objects of our treatment should be: (1) to limit the extension of the ulceration; (2) to treat the ulcers; and (3) to obviate their giving rise to hemorrhage or perforation. Dr. Ewart's remarks are limited to the medical aspects of the treatment.

Stagnation of putrid feces is probably one of the chief dangers. Though it may be to a great extent prevented, it is often overlooked. When stagnant, the more fluid the feces, so much the more likely are they to lead to toxic absorption. Whilst, then, there is an indication for reducing their fluidity, there is undoubtedly advantage in any method which provides for their ready evacuation. The difficulty lies at the seat of ulceration, where the accumulation due to paralysis of the bowel may amount to obstruction. Much of the alarming tympanites of bad cases is probably due to the resulting fermentation in the delayed intestinal contents, and this points to the importance of emptying the cecal pool. On the whole, a lessened fluidity or a moderate solidity of the contents of the lower bowel would seem to be preferable to the opposite extreme, which is a characteristic of the worst forms of typhoid fever. The lesser evil of constipation incidental to an astringent treatment is one easily overcome by daily injections. Due attention to these essential points might perhaps have yielded better results from the various antiseptic remedies which have been tried and subsequently discarded. For the treatment of enteric ulcers, as for that of ulceration in general, an adequate alimentation and local sanitation and antisepsis are the first requisites. If any local effect can be obtained from the internal administration of medicines, some mildly astringent influence is apparently the best, and the same is also indicated as a prophylactic against hemorrhage.

Relative inactivity of the liver is the inevitable consequence of the pyrexia, of the immobility of the patient, and of an exclusively fluid diet. Much of the value of Brand's treatment is, Ewart believes, due to the relief which it affords in that direction. Systematic cool sponging is also efficacious, and it is available in all cases, whilst high temperatures may call for the gentle use to the skin of ice wrapped in flannel. But in his experience the cool bath is rendered unnecessary by the administration of mercury, which excels all medicinal antiseptics in being at the same time a powerful hepatic stimulant, and in providing for the bowel a sufficient supply of its normal antiseptic, the bile. We should not lose sight of the mechanical factors. Our anxiety to avoid peristalsis may have been excessive. Distention of the thinned and ulcerated membrane is the real danger. In view of a possible hemorrhage or perforation moderate contraction of the bowel is the better state and is in itself protective, although active peristalsis is obviously to be avoided. An attempt to carry out some of these principles is contained in the following suggestions, which for the sake of brevity will not include any reference to diet and to nursing, as these matters are now receiving greater attention and are better understood.

The Postural Treatment.—Often in the course of an enteric attack there is obvious fulness and tension and extensive dulness over the right iliac fossa, and a sensation of weight will be conveyed to the hand when placed behind the loin, whilst the left iliac fossa is soft to the touch and resonant. Now it will be found that if the patient be placed for a few minutes on his left side, and once more examined in the supine posture, the conditions are entirely reversed, the right flank being resonant and soft and the left iliac fossa or the descending colon dull and resistant. Repeated observations of this result have for the last three years led Ewart to arrange the bed so as to keep the patient at intervals, or in some cases permanently, in a position of slight inclination toward the left. A partial later decubitus which he has usually found to be sufficient for the purpose may easily be obtained by placing a bolster or a firm pillow under the right side of the mattress so that the body is propped toward the left. A better method, which has the advantage of not disturbing the patient, consists in inclining the bedstead by blocks of suitable height placed under its two right feet, while the patient maintains the dorsal decubitus. Inasmuch as a slight elevation of the foot of the bed is a decided help, a double inclination may be obtained by using

three blocks of uneven heights. The bed in this case looks uncomfortable, but he has not heard of any complaint on the part of the patient. Either of these methods will fulfil an indication of the first importance by emptying the cecal pool, which he regards as an obstruction, and as responsible for fecal stasis higher up and for the toxic typhoid state. When the first method is resorted to there is no object in its being enforced continuously so long as the state of the bowel is carefully watched and the cæcum and lower ileum are kept empty. In anxious cases the other plan is decidedly to be preferred, and should be kept up during the period of danger. The methods in question are, in his experience, free from risk and from appreciable discomfort, and he has not been led to suspect that any undesirable strain is thrown upon the diseased bowel.

The Medicinal Treatment.—The remaining indications have appeared to Ewart to be best carried out by the treatment recommended some years ago by Mr. W. B. Wedgwood, of King's Lynn. Though it will not avail against the fatality of the worst attacks, it has, so far as Dr. Ewart has been able to judge, mitigated the severity of the great majority of cases, and has almost always led to an early amelioration, manifested by the disappearance of sordes, the cleaning of the tongue, the clearing of the complexion, and, above all, the return of the appetite. For an adult twenty minims of the liquor hydrargyri perchloridi and from fifteen to twenty minims of the tinctura ferri perchloridi, with one drachm of syrup of orange or lemon and an ounce of water, are administered every six hours through the attack, and for ten days after defervescence to obviate a relapse. Diarrhea, if present, is quickly stopped, except in the worst cases, and the constipation which often ensues and coincides with an excellent progress is remedied by daily injections of glycerin. The results have been so satisfactory that the administration of alcohol is hardly ever necessary and is carefully avoided, lest it should dull the appetite or burden the liver, but port wine is invariably given during convalescence. In the now considerable series of cases treated in this way salivation has never been observed, and the treatment is always well tolerated provided the dose is administered at an interval from milk meals, even should the milk be peptonized, as is his invariable rule.

To which of the ingredients the greater share of usefulness belongs it would be hard to say. In Ewart's opinion they are both valuable. An astringent effect of the iron upon the entire intestine is rendered probable by its constipating effect upon the lower bowel. We may, therefore, reasonably assume that it acts as a local application to the ulcers, whilst it tends to constrict the bowel and its blood-vessels against the risk of hemorrhage. The many-sided virtues of mercury are probably exerted upon the hepatic, the lymphatic, and the mucous systems, and it is not unwarrantable to suppose that its prolonged administration in frequently repeated doses may be an element in the disinfection of the alimentary canal.

TREATMENT OF PERIPHERAL NEURITIS.

According to an article by BURY, of Manchester, in the *British Medical Journal* of December 8, 1900, the best treatment of that form of peripheral neuritis due to arsenic is as follows:

The first essential in dealing with a case of peripheral neuritis is to find out the cause and remove it, or to stop its action as soon as possible. The cause is nearly always some poison; and if the patient be withdrawn from its influence and placed under favorable conditions, recovery is the rule. In the present epidemic arsenic appears to have been the potent factor, but let it not be supposed that alcohol is entirely innocent. In some quarters there appears to be a tendency to believe that alcohol has been overrated as an etiological agent in the production of peripheral neuritis. On the contrary, all the evidence at present in our possession indicates that it is the common cause of that disease, and, we may add, one of the most powerful influences in other ways which tend to cripple and shorten life. It may be hoped that at least one advantage of the present epidemic will be to direct public attention once more to the enormous quantities of alcoholic beverages which are still consumed in this country.

When we know that patients that visit our hospitals have been in the habit of taking ten, twenty, and even thirty pints of beer a day, and as a result are gradually but surely losing their physical and mental powers, and then reflect on the present arsenical panic, we begin to wonder why there has never been an alcoholic panic. The scare with regard to poisoning by arsenic has been fully justified, but surely consternation on regard-

ing poisoning by alcohol might be looked on as equally natural.

There appears to be a curious difference in the relationships of doctors and patients in respect to alcohol, and to other poisons. If a doctor finds that his patient is taking lead, arsenic, or mercury in poisonous doses, he tells him so, and urges him to discontinue his dangerous practice. But if alcohol in large quantities is being taken, the doctor requires more courage to tackle his patient, for he runs the risk of offending, and possibly losing, his client.

Nevertheless, the gain in self-respect ought to compensate for the temporary loss of a client, for, as Dr. Barlow has well said: "What can be more humiliating to us as medical men than to have repeatedly to attend people who every day are shortening their lives and converting a remediable condition into a hopeless disease, whilst we stand with folded arms, or write prescriptions, and have not the courage to tell them what is right and stick to it?"

Having removed the patient from the influence of the poison, the next thing is to place him under the most favorable conditions for recovery. Now in all except the slightest cases rest in bed is advisable. The patient is thus protected from exposure to cold, the pernicious effects of movement are reduced to a minimum, and local treatment can be carried out more readily and satisfactorily.

In the acute stage the suffering of patients with arsenical neuritis is often extreme; and it is of the utmost importance to relieve this as promptly and effectively as possible. The severest cases require a water-bed; this not only relieves pain better than an ordinary bed, but also gives more support to a weak patient, and thus lessens the danger to life arising from a feeble heart or from paralyzed respiratory muscles.

In feeding the patient or in attending to his evacuations, the nurse should exercise the greatest care and gentleness, so that all unnecessary movements on the part of the patient may be avoided. On no account must she attempt to massage the limbs.

As regards drugs, in the earliest stages of neuritis, salicylate of sodium and potassium iodide, either alone or in combination, appear to be of service. Neuralgic pains may be relieved by the administration of antipyrin, phenacetine, or exalgin; but when suffering is very great the hypodermic of morphine is necessary. Let it be particularly noted that in the acute stage strychnine must not be given.

But of far greater importance than drugs is the regular and careful administration of nourishment, in the forms of boiled milk, beef tea, beef extracts, soups, and broths. Benger's food or peptonized gruel may be required, and when vomiting is a prominent symptom nutrient enemas should be administered.

Complete rest in bed in a well ventilated room, careful feeding, and exposure to sunlight are the essential points in the treatment of the early stages of multiple neuritis.

When the acute symptoms have subsided, but not before, recourse may be had to massage, electricity, and tonic treatment. In the acute stage massage would be unendurable, and certainly very hurtful; but its application must not be delayed too long. It may be employed as soon as extreme pain and tenderness have disappeared. At first massage should be employed in the gentlest manner and only for short periods of time; but as soon as the patient stands it well, it ought to be regularly and vigorously applied. The patient should also be encouraged to make voluntary movement against resistance; and other modes of Swedish exercises can be employed with advantage. Incoordination of movement is best treated by Fraenkel's method, the essential feature of which is to submit those muscles which manifest the incoordination to a series of graduated and systematic exercises.

By these means the nutrition and strength of the muscles and the coordinating power are improved, while any tendency to contracture is overcome. Moreover, the patient's capacity for assimilation of food is thus steadily increased.

The restoration of the degenerated nerves and muscles may also be aided by the daily application of electricity. The constant current is the most useful in stimulating the nutrition of the affected muscles. Large electrodes are desirable, in order that as much muscular tissue as possible may be reached by the current. As soon as the muscles respond to a weak faradic current, this form of electricity may also be employed with advantage. A daily warm bath, followed by vigorous friction to the skin, is of value, whilst tonics and cod-liver oil often prove of great service. Arsenic has been recommended in the treatment of multiple neuritis, but of course it must not be given in the cases under consideration. Of all

drugs that may be regarded as tending to the restitution of the paralyzed parts, strychnine is unquestionably the most valuable, and it is better to administer it hypodermically than by the mouth. It is advisable to begin with a small dose, say one-fiftieth of a grain, and then gradually increase the quantity.

TREATMENT OF SKIN CANCERS WITHOUT OPERATION.

STELWAGON (*Journal of the American Medical Association*) notes that it has been clearly shown by microscopical investigations that the outlying pathological epithelial cells may often be found considerably beyond the apparent border of the disease, and are, therefore, often missed by the surgeon's knife. In the caustic method such cells are usually destroyed or weakened by the products of cauterization or by the marked inflammatory action resulting, and a reappearance of the growth is thereby rendered less probable. Further, if the parasitic view of the cause of these growths be accepted, it can be readily understood why the caustics usually employed may have a very positive influence on the parasitic agent. Moreover, the resulting inflammatory action on the surrounding tissues and the ensuing suppuration have an influence antagonistic to outlying morbific cells.

Another important consideration which is often overlooked in the management of these cases is that the secret of the successful and permanent removal of an epithelioma is to get the case in its earliest stage, before there has been chance for an invasion into the surrounding tissue. It is often just at such times that these patients first apply for advice, but the suggestion of the knife, or even of the curette, is followed in many instances by a postponement of treatment, and in consequence a greater growth of the lesion and less probability finally of permanent removal. A cauterization at this time, against which there is rarely opposition, would result in permanent cure.

Irrespective, however, of the natural objections of many of these patients to operative measures, Dr. Stelwagon believes that the caustic method properly followed out lessens the chances of recurrence. There is no damage done with caustics if they are judiciously and boldly used; it is the temporizing treatment with mild caustics or the hesitating treatment with active caustics which may often do harm. The mild caustics, in fact, of which silver nitrate is an exponent, should have no place in the treatment of these growths.

There are many caustics which have a very positive action, but the writer speaks only of those which have been most useful in his hands, and with which he has treated successfully many cases of skin cancer of the superficial type. These are four in number—arsenious acid, caustic potash, zinc chloride, and pyrogallol. The first three are those which are most commonly employed by those who have had the largest experience in treating cutaneous epitheliomata by the caustic method.

As an adjuvant of no mean value to these several caustics—with the exception of the caustic potash—Stelwagon has been in the habit of employing salicylic acid, in the proportion of five to ten per cent. This addition, as a rule, does away with the necessity of any preliminary preparation of the surface in those cases in which the skin is as yet but slightly broken or ulcerated. As a rule, however, in all those cases of epitheliomata over which the epiderm is, in places at least, still comparatively intact, and in which arsenious acid, zinc chloride, or pyrogallol is to be used, it is best to apply momentarily a weak solution of caustic potash of about five- to ten-per-cent strength; this removes the outer epidermic surface and makes the action of the applied caustic much more rapid and thorough. This potash solution should not be allowed to have a caustic action, but merely a superficial effect, and then washed off. In those cases in which the central part is ulcerated, but the outlying portions still covered with skin, this application should only be made to the latter.

In the selection of one of the four caustics named, one fact is to be remembered, and that is that pyrogallol and arsenious acid have practically an elective action, destroying the pathologic tissues, and having, when properly employed and not too long applied, but little influence on healthy structures. This so-called elective action is doubtless due, in part at least, to the feebler resisting power of morbid tissue.* Moreover, pyrogallol is, as a rule, a painless caustic.

In small lesions it is a matter of indifference whether either arsenious acid, zinc chloride, or caustic potash be used. In large-sized lesions, if the epitheliomatous area is curetted first, a measure to which some have recourse, then the pyrogallol ointment is best for destroying what pathologic tissue and

cells may have been left after the curetting. A momentary application of a fifty-per-cent or stronger caustic potash solution may also be used for this purpose. It is in very superficial types, in which the tendency is to run along the surface rather than deeply, that pyrogallol ointment may be employed to advantage. It has its special field, however, in cases similar to the last named, when the patient is advanced in years, or in a depressed condition of health. Its painlessness, or comparative painlessness, especially commends it for such cases, in which stronger caustics or operative measures could not well be employed. In extremely sensitive women this remedy can also be used.

Pyrogallol is, however, it should be stated, the weakest and probably the least certain of the several named. It is also slow in its action. It requires from ten days to three weeks for satisfactory results, and may later need a repetition for a shorter period. The formula employed should be one of 25- to 33⅓-per-cent strength, made up with three parts vaselin to one part simple cerate; or with three parts resin cerate to one part resin plaster. The proportion of the simple cerate or the resin plaster is to be varied according to the season, whether warm or cold. The ointment may be made more effective by the addition of ten per cent of salicylic acid; if this should give rise to pain, a small quantity of cocaine, five to ten grains to the ounce, can be added. The method of applying it is as follows: It is spread thickly on the woven side of patent lint or on a piece of kid, to the thickness of one-eighth to one-fourth inch. Depending on the region involved, it may be advisable to bandage it on or to fasten with adhesive strips; as a rule this is only necessary during the night. The dressing is renewed every twenty-four hours, the surface being gently wiped off at each renewal. At the end of three or four days a certain amount of slough is produced; this is, so far as possible, gently rubbed or picked off, or the part may be poulticed for several hours to a day. The ointment is immediately reapplied as before for three or four days more, and in this manner it must be continued for ten days to three weeks, according to circumstances; finally, after removing the slough, a mild indifferent ointment may be used, and healing permitted to take place. For this purpose an ointment of resin cerate, or zinc oxide, with a few grains of carbolic acid to the ounce, will answer well; it is changed two or three times daily, according to the amount of discharge, and the parts washed at least once daily. If complete healing should not ensue, or should a recurrence subsequently show itself, the same plan is to be repeated.

Zinc chloride has been employed for the removal of morbid growths for some years, and had in former days, probably, a greater number of advocates than at present. It destroys healthy and morbid tissue alike, the former possibly somewhat less rapidly than the latter. Its action is a peculiar one, in that it seems to mummify the tissue. The same preliminary preparation should be made for its use as with the application of pyrogallol; the overlying skin, if intact, being softened with the potash solution. While this is not so necessary with the caustic, it hastens its destructive action. It is rarely used pure, but is most commonly employed as a paste with flour. It is a painful caustic, and as its painfulness is evidently lessened by the addition of cocaine, this may be incorporated to the extent of five to twenty per cent. Probably the best paste is that known as Bougard's, the composition of which, as usually given, is as follows: Wheat flour and starch powder, each 4 drachms; arsenious acid, 4 grains; cinnabar and ammonium muriate, each 20 grains; corrosive sublimate, 2 grains; zinc chloride crystals, 4 drachms; boiling water, 6 drachms. The first six ingredients are thoroughly mixed and the zinc chloride dissolved in the water, and then the two mixtures rubbed together *secundem artem*. It is difficult to have this paste made with the amount of water as given. It is advisable, however, to use as little water as possible, so that the paste may be of stiff-dough consistency, and then to add at the time of application a sufficient quantity of a saturated solution of cocaine hydrochlorate to bring it to working consistency. The paste is spread on any suitable material and applied to the growth, extending slightly beyond the border. The depth destroyed is usually equal to two or three times the thickness of the layer of paste. There is a variable amount of inflammatory swelling in the course of twenty-four hours, but this is rarely so marked as from the arsenical application to be spoken of later. At the end of twenty four hours, according to the intensity of the inflammation, the plaster is removed. If the destruction is deemed insufficient, the mummified tissue is to be gently pared away, which can

be done without pain, and a fresh application made. In lesions of superficial character rarely more than one application is necessary. The dead tissue is removed by paring it away and by poulticing; an ointment may be kept constantly applied and the slough permitted to come away gradually. The separation of the slough requires usually from five to twenty days. The subsequent treatment is the same as with the use of the other caustics.

A paste made extemporaneously, consisting of one part zinc chloride and three parts flour, using the saturated solution of cocaine hydrochlorate to make it up into a paste, will also act satisfactorily. Zinc chloride is of special service when the growth is seated over a vessel, as, for instance, over the temporal artery, as its mummifying action prevents any hemorrhage from destructive action.

Arsenic is undoubtedly the best caustic to employ in many of these cases. Marsden, who was the first to emphasize the value of this caustic in these cases, advised a paste made of two parts of the arsenious acid and one of mucilage acacia. Robinson recommends two strengths, one of equal parts of arsenious acid and powdered acacia, and one of two parts of the arsenic and one of the acacia, using sufficient water at the time of application to make into a paste of the consistency of stiff butter. Marsden advised against applying the remedy to a larger surface than one square inch at one time. If the area is somewhat larger than this, and it is desired to treat it all at one time, satisfactory results can be obtained by using zinc chloride paste centrally and the arsenical paste peripherally.

The paste is spread over the diseased area, well overlapping the edges, spreading to about the thickness of one-fourth inch; over this is placed a piece of patent lint; in five to ten minutes the paste has hardened somewhat, and the edges of the lint, if necessary, may be trimmed. This may usually be left on for twenty-four to forty-eight hours; poultices are then to be applied and the slough is gradually removed. If for any reason poultices cannot be continuously applied, they may be employed during the daytime and a simple ointment dressing at night. In some instances, in which the constant application of poultices is not feasible, an ointment dressing is applied until the slough comes away, and in fact until complete healing takes place. The slough clings for some time; with poultices it usually comes away in five to ten days; with ointment it takes considerably longer. Robinson advises that the application be left on not longer than twenty-four hours, there being a possibility that too much action will have taken place if kept on longer, and that dangerous absorption might ensue. The effect of the application is that in ten to twelve hours a good deal of inflammatory swelling and edema have taken place; if at the end of twenty-four hours there is no evidence of such action, the plaster should be removed and a fresh one applied. Ordinarily one to two days' application will suffice to show sufficient destruction and inflammatory action.

In weaker proportions, arsenious acid may be used with great advantage in the superficial spreading epitheliomata, such as mentioned when speaking of the use of pyrogallol. For this use the application much employed by the late Professor Hebra in the treatment of lupus vulgaris can be used. It consists of arsenious acid, one part; artificial cinnabar, three parts; rose-water ointment, twenty-four parts. This may be used over palm sized areas and without risk of bad results from absorption. It is spread on patent lint, to the thickness of one eighth inch or more, and applied to the whole diseased patch; this is covered with some impermeable material and fastened on with adhesive strips or with a bandage. It is changed every twenty-four hours. At the end of the first day slight swelling and some pain are noticed, which increase during the next twenty-four hours. This application is to be continued for three days, sometimes four; at the end of this time, if the action is insufficient, a further application is to be made. The subsequent treatment is the same as with other plans. If there are still evidences of disease after the slough comes away, the treatment can again be repeated. The incorporation of cocaine in this ointment will render its action less painful.

Caustic potash is a powerful caustic, and must always be used with care. It is rapid in its action, one thorough application usually sufficing to destroy the entire growth. It has its special field in small and beginning cutaneous skin cancers, and in those in which time is important and in which the patient can only remain under observation a short period. The stick should be employed, or the strongest possible solution. The former is preferable. If the surface of the growth is crusted this should be removed, and the parts

outside the diseased area protected with a layer of vaselin, after which the caustic is applied. If the lesion is small and superficial, the desired effect is usually sufficiently attained in a minute or two, and then further action is to be prevented by the application of dilute acetic acid or vinegar. The free use of caustic potash without restraint with this acid application means unnecessary pain and often unnecessary destruction and disfigurement. This caustic is painful, but only at the time of application. If the growth is somewhat large, injections of a weak solution of cocaine may be made at first, or moderate obtunding may be secured by the cataphoretic introduction of cocaine. Subsequently the parts may be poulticed until the slough comes away, which may require several days; or when this cannot be followed out, an ointment similar to that prescribed after the use of the pyrogallol ointment may be continuously employed. In the latter event the slough is slow in coming away.

The proper use of this caustic constitutes an extremely valuable method of treating these growths, and has, as already remarked, the great advantage of rapidity. It might even be satisfactorily used in larger epitheliomata, if applied under anesthesia. The reactive inflammation which always follows the application of this caustic is in itself an element of some value.

THE TREATMENT OF GONORRHEA IN WOMEN.

GIBSON (*Edinburgh Medical Journal*, vol. iii, No. 6) quotes a communication made by Janet to the International Congress in Paris. A recent gonorrhea in the female may affect the urethra, the glands of Skene and Bartholin, the vagina, and the cervix uteri. At each examination one should discover which of them is affected, and apply the treatment accordingly. The urethra is irrigated with a cannula so constructed as to furnish a recurrent stream, with permanganate solution of the strength of one-half to one per cent. A short catheter may also be used to wash out and fill the bladder; the patient then passes the solution, and irrigates the urethra in so doing. When Skene's glands open outside the urethra, they are emptied by pressure and washed out with permanganate solution (1-to-300) by means of a syringe provided with a fine soft cannula; when they open into the urethra, the lips of the meatus are separated by a bivalve speculum, the openings of the ducts are searched for, and the glands washed out in the same way. Bartholin's glands are also emptied by pressure, and are washed out with the same solution. The vagina is irrigated with permanganate solution (1-to-2000), and the cervix is swabbed out with cotton-wool soaked with the permanganate solution (one-per-cent). The permanganate may be replaced by protargol, in the strength of two per cent for the cervix, one per cent for the glands, and one-half per cent for the urethra.

CANCER OF THE RECTUM AND ANUS.

SCHNEIDER (*Annals of Surgery*, vol. xxxii, No. 6) reviews 115 cases treated at Rostock during the period of 1883–1899 with the main purpose of showing the gain secured by the sacral methods introduced by Kraske in 1887, and thus offsetting the adverse contention of English and French surgeons. Sixty-six males and forty-nine females made up the list of the afflicted, the average age being fifty-nine for the former, and fifty-five for the latter. Four cases are reported during the juvenile period, the youngest fourteen years old, and all were examples of cylindrical carcinomata, and their fate that of adults with like carcinoma.

Etiologically, hemorrhage and prolapse were found responsible factors in the greater number of instances. There were no distinctive rectal signs peculiar to carcinomata, as in most cases digital examination alone cleared up the situation.

Whereas Kraske's operation has enlarged the field and scope of operative interference, it has in no measure replaced the older procedures, which are applicable to less extensive carcinomata, and are therefore not competitors with Kraske's method. Concurrent with the latter are Kocher's and Schlange's osteoplastic methods. Against the latter it is held that it offers too small a space and leaves too many pockets, which favor wound infection. Other procedures, like Rehn's vaginal route or the abdominoperineal route of Quenu and Hartmann, were not practiced.

The indications set down for Kocher's method is a growth beginning just above the anus, and whose upper limit can still be palpated, no adherence to the sacrum, and a tumor that can be drawn down. Kraske's procedure was reserved for growths so extensive as not to permit of the introduction of the finger into the lumen of the bowel in

order to palpate the upper limit of the tumor, and where extensive adhesions existed with the sacrum. The performance of methods without bone resection is limited to growths situated no higher than eight to ten centimeters, which must not be circular or adherent, nor must there be any metastases in the sacral glands.

As inoperable are to be regarded cases where the bladder or uterus is invaded, or where infiltrations are extensive or flat, and where there are metastases of the internal organs. Between these two latter extremes lies the medium for bone resection methods, which embrace by far the majority of operations. The restoration of the rectal canal was favored by end-to-end suture of the segments, provided the proximal stump was freely movable, and enough of the anal stump was preserved; and be it here stated, that only in exceptional instances could the peritoneal reflection be spared. To insure accurate adaptation, supplementary sutures were passed through perirectal tissues. This method was practiced in seven out of seventeen cases with success. Where the distal segment was small and the proximal freely movable, invagination of the latter two into the former was done; this was executed thirty-one times successfully. An artificial sacral anus was made seven times, and three times according to the torsion method of Gersuny, and only in one instance, according to the latter method, was continence obtained.

A summary of the results is as follows: Cases operated without bone resection, twenty. Of these, thirteen died after one year and ten months; two died as a direct result of the operation; three times was continence obtained. Seven survived three years, and of these two even lived beyond nine years.

With bone resection according to Kocher's method, twelve cases were subject to operation; four died from complications associated with the operation; of the surviving eight only one lived three and another six years. In no instance was continence obtained.

Operated on by Kraske's method there are seventeen cases; thirteen survived the operation; four died from complications intimately dependent upon the operation; seven died after one year; five are living after one year. Kraske's personal experience in the first ten cases offered a mortality of forty per cent; later on, with extensive experience, in fifty-one cases this mortality was reduced to 9.8 per cent.

By Schlange's temporary bone resection four cases were operated on, with no deaths from the operation; only one patient lived three years thereafter. The thirty-two cases of colostomy had an average life of eight months. Twenty-eight cases treated palliatively lived thirteen months.

In conclusion, it is stated that of the thirty-one cases treated with bone resection methods forty-five per cent died in one year, fifty-eight per cent in two years, and the operation mortality was twenty-three per cent. Notwithstanding this high death-rate, the author expresses his belief that with the dexterity pursuant to a larger experience these figures can be reduced, as Kraske himself has shown, so that the field for the only operative procedure which accomplishes a radical extirpation of the neoplasm can be greatly extended.—*Beiträge zur Klinische Chirurgie*, Bd. xxvi, Heft 2.

USEFUL HEARING OBTAINED IN A DEAF-MUTE AGED NINETEEN YEARS.

GIBSON (*Australasian Medical Gazette*, vol. xix, No. 10) reports the case of a girl nineteen years old, who as a baby could hear and had begun to talk a little, but contracted measles at the age of eighteen months. She had not talked since until taught lip-reading. For all practical purposes she was deaf and dumb. The tympanic membranes were opaque and indrawn. A tuning-fork, if vibrating strongly, could be heard in each ear by air conduction. On examining the nasopharynx a dense band of hypertrophy in each Rosenmüller fossa was found. The hypertrophied tissue was removed, and her ears were regularly Politzerized. This was followed by a very great improvement in hearing, so that words distinctly spoken at the distance of a few feet in the ordinary voice could be understood.

FRACTURE OF THE SPINE.

LATHROP (*Annals of Surgery*, vol. xxxii, No. 6) thus summarizes his paper on this subject:

1. In partial lesions we should operate.

2. Where the lumbar region is involved, with lesions of the cauda equina, operation offers the best chance of recovery.

3. In fracture of the spinous process, lamina, or entire neural arch, operation is demanded.

4. Should immediate operation not be done, and we wait six to eight weeks, with the result that paralysis of the bladder and bowel continues, with cystitis and severe bed-sores present, we may be sure that nature cannot relieve the case, and an operation is not only indicated, but demanded.

THE RADICAL CURE OF INGUINAL HERNIA IN THE FEMALE.

The method that Dr. COLEY (*Annals of Surgery*, vol. xxxii, No. 6) has employed in 123 cases is practically Bassini's method as performed in the male, the single step of transplanting the cord being omitted. The incision is made one-half to three-quarters of an inch above and parallel to Poupart's ligament, and should extend nearly to the level of the anterior superior spine. The aponeurosis of the external oblique is slit up well over the internal ring and dissected back to the edge of the rectus on the inner side, and on the outer sufficiently far to expose the thick fold of Poupart's ligament. If the sac is sought for high up, just below the edge of the internal oblique muscle, there will be no difficulty in finding it. After the sac has been dissected from the round ligament and thoroughly freed well within the external ring, it is transfixed and tied off with catgut. The wound is then closed in three layers as in Bassini's method, a medium-sized kangaroo tendon being used for all buried sutures, and catgut for the skin; in the deep layer, interrupted from above downward, bringing the internal oblique and transversalis muscle over to Poupart's ligament. The round ligament is allowed to drop back into the lower angle of the wound, and as it approaches the pubic bone it is so small that it requires much less space than the cord in the male. The aponeurosis is now sutured with a continuous suture of kangaroo tendon, about the size of a No. 1 catgut. The skin is closed without drainage, and the wound dressed according to the practice that he has used in all hernia cases the past ten years, viz., with iodoform gauze and moist bichloride gauze 1:5000.

This method of operation and dressing has given such admirable results as regards primary union that Coley has been loath to change. Prior to December, 1898, when he began to use rubber gloves for assistants and cots or gloves for himself, he had ninety-six per cent of primary wound healing; and since this date he has had 150 cases of hernia, with but one suppuration, which was proved bacteriologically to have been due to imperfect sterilization of the skin of the operative field rather than to defective technique.

As bearing on the necessity of wearing rubber gloves during operation, he cites the bacteriological findings in thirty-five examinations. In the scrapings beneath the nails of the surgeons no growths were found in eighteen cases; in seventeen various forms of bacteria were present; in seven cases diplococci; in two cases streptococci. In the majority of instances the chloride of lime method was used for the sterilization of the hands.

Sterilizations of the skin of the field of operation were successful in the large majority of cases.

Of sixty-eight cases in which portions of the skin were removed from the field of operation just before the primary incision was made, fifty-three were found to be sterile, while in fifteen only were there bacterial growths. Of these streptococci were found once; diplococci, five times. The presence of these organisms had little, if any, influence upon the wound healing, with the exception of one case in which streptococci were found. In this case, although gloves were worn by the surgeon and the assistants, the operation was perfectly simple and rapidly performed. A sudden rise of temperature occurred twenty-four hours after the operation, and continued high until the dressing was removed. At the end of forty-eight hours extensive suppuration was found, extending down to the deep fascia, and a culture made from the base showed a pure culture of streptococcus, proving that in this instance infection was due to the imperfect sterilization of the skin.

In regard to results of operation in inguinal hernia in the female, few statistics are available. Bloodgood's report (*loc. cit.*) of operations on 459 cases of hernia at the Johns Hopkins Hospital contains a list of thirty-nine cases, with detailed results. The round ligament was excised in twenty cases, and the internal oblique muscle divided and transplanted (drawn down to the line of the wound). In six cases the ligament was excised, but the muscle not divided. In three cases the round ligament was not disturbed, but the internal oblique muscle was divided and transplanted. In five cases the round ligament was left undisturbed, and there was no division of the internal oblique muscle. In two cases the round ligament was trans-

planted at the upper angle of the divided internal oblique muscle in the same manner as the cord is transplanted in the male (Halstead's operation).

In regard to results, death occurred in one case, recurrence in one case. Perfect results were noted in twenty-one cases. Six cases have remained well for three to eight years, three cases two years, and nine cases one year.

Dr. Coley's personal results are as follows:

From 1892 to the present date he has operated upon 123 cases of inguinal hernia in the female without mortality.

The ages of the patients have ranged between four and seventy years. Seventy-three patients were under fourteen years of age, and fifty cases between fourteen and seventy years. In eight cases, or 6.5 per cent, suppuration occurred; though in every case it was slight and limited to stitch-hole infection, not prolonging the stay in the hospital.

The average time he has kept patients in bed has been ten days, and they have been allowed to go home at the end of two weeks. A spica bandage is kept on for two weeks longer, at the end of which time support of any kind is discontinued.

He has been able to trace all but thirteen patients.

One was well seven years after operation; two were well five to six years after operation; five were well four to five years after operation; fourteen were well three to four years after operation; twenty-six were well two to three years after operation; twenty-seven were well one to two years after operation; sixteen were well six months to one year after operation.

THE SURGICAL TREATMENT OF PULMONARY CAVITIES.

SARFERT (*La Semaine Médicale*, No. 50, 1900) having had occasion to treat a man suffering from a tuberculous cavity of the lung with a persistent fever and other symptoms of active septic absorption, made an incision above the second rib from a little to the outer side of the sternum to the axilla, dividing the muscles, and exposing the rib, which was then resected, after which the cavity was opened by the thermocautery. The fever ceased at once, and the cavity rapidly contracted, but unfortunately the patient died in two months from tuberculous involvement elsewhere.

TREATMENT OF PROSTATIC HYPERTROPHY.

GUITERAS (*New York Medical Journal*, vol. lxxii, No. 23) is in the habit of performing prostatectomy by what he calls the recto-vesical method, although no part of the operation proper is performed through the rectum, the fingers simply being inserted to exert direct counter-pressure and guide the operating finger, which is working through the bladder. The steps of the operation are, briefly, as follows: Suprapubic cystotomy is performed, after which retention sutures are passed through the bladder wall on each side of the incision. Careful rectovesical palpation is then made, two fingers of the left hand being in the rectum, while the right forefinger is in the bladder, and a visual examination is made by means of an electric light inserted into the bladder. A pair of scissors is inserted into the bladder, the closed blades being pressed against its floor in the region of the neck in the median line, until the blades are felt depressing the prostate against the two fingers of the left hand in the rectum, which are in turn pressing upon the gland in the median line from below, showing exactly whether they are in the right position or not. The blades of the scissors are opened, and a cut is made through the bladder tissue covering the gland in a line corresponding to the space between the fingers and the rectum. The forefinger of the right hand is then inserted into this cut through the bladder, and gradually works its way between the capsule and the gland. The two fingers in the rectum feel the one in the bladder working its way between the capsule and the gland, and they start counter-pressure while the enucleation is being performed. The finger-tip under the capsule first sweeps to one side, and pulls out one lateral lobe, then to the other side, and enucleates the other, and finally removes the middle lobe; or it first works its way backward under the base of the middle lobe, which is enucleated with a dissecting rotary movement, and then proceeds to enucleate the two lateral lobes. The gland having been removed, there is always free hemorrhage, and very hot water should be injected for two or three minutes into the bladder suprapubically, during which time the surgeon again washes his hands. He then passes a grooved sound, preferably a lithotomy guide, through the urethra into the bladder, and having brought the patient into the lithotomy posture, he rapidly cuts through the mem-

branous urethra, and pushes a large peritoneal drainage-tube into the bladder, which he fastens to one side of the perineal incision. The finishing steps of the operation are to put two catheters into the bladder suprapubically, with a gauze drain packed down beside them into the cavity made by the removal of the prostate, fasten them into the skin of the bladder wall, and then sew the bladder wall up to the drain. The surgeon then closes the abdominal wall, including fascia, muscle, and skin, as far as the drain. The floor of the prostatic urethra should be cut through from above downward before the perineal tube is left permanently in place, to prevent the formation of a pocket, which would retard the cure.

The After-treatment.—An enema of a pint of hot saline solution at a temperature of 120° F., to be retained, should then be given to the patient, together with one-thirtieth of a grain of strychnine, and he should be put to bed with hot bottles at his feet. The shock in these cases is often great, and should be guarded against as much as possible. As soon as he comes out of the effects of the ether, a little hot water or bouillon should be given, and from this time on the hot water should be pushed *ad libitum*. If the patient vomits the water, give more in a few minutes, and continue to force it. It is wonderful how much water can be given in these cases, some patients taking between one and two gallons in the first twelve hours. This has the effect of flushing the kidneys and producing free diuresis. Any water is good for the purpose, although Dr. Guiteras is in the habit of prescribing some mild diuretic spring water.

The strychnine in one-thirtieth-grain doses should be given every four hours hypodermically, and it is well to repeat the hot saline enema every four hours. In this way something can be done for the patient every hour if they are alternated, either strychnine, hot rectals, bouillon, or water, remembering that the water should be pushed to its maximum tolerance.

It is well, both before and after operation, to give a urinary antiseptic, preferably urotropin, in ten-grain doses, three times a day. A diet of milk, from two to three quarts a day, is advisable. The bowels should be moved with some saline water, Apenta or Hunyadi, on the second day.

The suprapubic tubes can be removed at the end of a week, and the perineal one at the end of two or three weeks. The drainage in these cases is by the siphon method, into bottles hanging from the side of the bed, two pieces of tubing going from the suprapubic opening, and one from the perineal.

In closing his remarks, Dr. Guiteras states that he considers the operation of prostatectomy as still in its infancy, in the same position as hysterectomy was some years ago, but he has no doubt that it will some day be simplified, and it behooves all surgeons interested in this line of work to try to improve the methods and technique of the procedure.

TREATMENT OF PLACENTA PREVIA BY A CÆSARIAN SECTION.

DONOGHUE (*Boston Medical and Surgical Journal*, vol. cxliii, No. 23) urges that the treatment of placenta previa in the past has not taken sufficiently into consideration the fact that two lives are involved, and while craniotomy has become a thing of the past, and its performance on a living child, by many men, not justified to-day, there is not the same feeling about the induction of labor, or the resort to severe operative delivery, which no less surely than craniotomy takes away the chance of life from the child. Luk, in 1887, speaking of craniotomy, said: "If it were proposed to a physician to beat out the brains of a new-born child with a view to diminish the perils of the puerperal period, the proposition would certainly be rejected as too horrible for consideration, even though the physician was convinced that the theoretical ground for the recommendation was correct. Yet there seems to be a prevailing disposition to treat any hesitancy to destroy the unborn child, in the interests of the mother, as pure sentimentality."

For the purposes of this paper a consideration of the following will be sufficient: (1) Induction of premature labor; (2) rupture of membranes followed by natural delivery or delivery by forceps; (3) manual dilatation of os with delivery by version; (4) Cæsarian section.

Induction of premature labor is advised as soon as diagnosis is made. This treatment is based solely on the desire for the safety of the mother without regard to the child's life. After the seventh month it might be logical treatment if no better offered, but before the seventh month it should not be justified. In the early days of pregnancy the classical treatment for threatened abortion should be given,

namely, rest in bed, patient not being allowed to rise for any purpose during continuance of symptoms; all mechanical irritation of cervix should be avoided and the bowels kept open. In cases of contracted pelvis, maternal mortality of section at term is no higher than after induced labor, while the fetal mortality is practically nothing. On the other hand, the cases of induced labor show an immediate fetal mortality of 33⅓ per cent, with an ultimate mortality of from 50 to 75 per cent. This fetal mortality can never be much diminished, for it depends upon conditions over which we have no control, namely, the delicacy of the premature infant and its consequent liability to suffer from the effects of labor; the frequent necessity for interference, due to malpositions and deficient uterine action; the liability of the child to perish from malnutrition within the first weeks of extra-uterine life; and the impossibility of knowing that we are dealing with a viable child.

The second method is useful in cases of lateral or marginal placenta, where good pains are present and os dilated or dilating. Under favorable conditions this treatment shows extremely low mortality, but it is useful only in cases of complete previa.

The third method, the treatment of placenta previa by manual dilatation followed by version, is almost universally used to day by English and American obstetricians, and has shown in the hands of experts a steadily decreasing maternal mortality; but it can hardly be called an ideal treatment, since while it has reduced the maternal mortality to probably the lowest point obtainable (about twelve per cent), it has done so at the expense of the fetus.

Blackmer, whose results with version show the lowest mortality of reported cases, says: "The safety of the mother is, of course, of paramount importance, but a mode of treatment which does not in any way tend to lessen the already numerous dangers to the child's life cannot be called an ideal one. We are justified, then," he continues, "in considering any method which may diminish the risk to the child while at the same time it does not increase the risk to the mother."

It would seem that section, in preference to other operative interference, is indicated in: (1) Cases of complete previa; (2) cases of previa in primiparæ when signs of fetal or maternal exhaustion are evident; (3) when the condition of rigid os is present; (4) where there is a history of previous operative delivery; (5) in transverse positions, and in cases of prolapsed cord, if the cord is not easily returnable.

That Cæsarian section is the easiest of celiotomies all who have performed it admit, and in nearly every large community it is possible to obtain an operator capable of performing it under strict aseptic and antiseptic precautions. It is also an extremely safe operation, not only for the mother but for the child, and this latter fact leads Dr. Reynolds to say in the paper already quoted: "Is not the life of the child as good a reason for the performance of a simple abdominal operation as the chronic backache for which such operations are done daily?"

THE TREATMENT OF FISSURE OF THE ANUS.

ROSENBACH (*Berliner Klinische Wochenschrift*, No. 10, 1900) advises against surgical measures in the treatment of fissure *in ano*. He cautions the patients to avoid the habit of constipation incident to the pain that is experienced when the bowels are moved, and advises them to palpate and massage the spasmodically contracting sphincter by means of the finger introduced into the anal aperture. He advises a conical rectal dilator which is used regularly after the bowels have been opened. Under this treatment the patients recover.

POST-MATRIMONIAL GENITAL INFECTIONS.

Under a somewhat different title BOISSARD (*Journal de Médecine de Paris*, No. 49, 1900) discusses the prevention of post-matrimonial inflammatory lesions of the genitalia. He believes that these diseases and their sequelæ may be almost absolutely guarded against by the regular use of a corrosive chloride douche. He advises the ordinary fountain syringe, provided with a glass nozzle which is kept in a strong solution of bichloride. The fountain syringe holds two quarts and is provided with a tube five feet in length.

The strength of the solution employed varies from 1 to 20,000 to 1 to 4000, according to the tolerance exhibited by the mucous membrane. The nozzle is introduced into the vagina and the vulva is pressed about it so that the whole vagina is distended; the antiseptic fluid thus reaches all its recesses. On relaxing the compres-

sion, the retained fluid gushes out. This procedure is repeated many times, and two quarts of the solution is used. After having completed the irrigation, the exterior genitalia are very carefully washed in a solution of the same strength.

These irrigations should be repeated daily, and will, according to the author, prevent nearly all the non-specific and specific infections to which women are subject.

THE TREATMENT OF NEURALGIA BY ACUPUNCTURE.

SUTHERLAND (*La Semaine Médicale*, No. 50, 1900) reports the immediate relief of severe neuralgic pains, and particularly that type of pain called lumbago, by a simple and almost painless procedure. He pinches up a fold of the skin directly overlying the point of suffering, and pierces it through and through with a needle, which is allowed to remain in place for from three to twenty minutes. The relief experienced, due no doubt to an irritation of the nervous terminals and a modification of the circulation, lasts for about ten hours.

KIDNEY SUCCESSFULLY REMOVED FOR COMPLETE TRANSVERSE RUPTURE.

RUTHERFORD (*Glasgow Medical Journal*, vol. liv, No. 6, 1900) reports the following case:

James K., aged sixteen, while riding a bicycle was thrown from it, receiving such a bruise on the right side that he had to be taken home in a cab. From the time he got home till seven o'clock the next morning the urine passed contained more or less blood. No blood was seen in the urine after his admission to hospital. Pain was complained of all over the abdomen, with boarding of the muscles and general tenderness, though it is noted that the pain in the abdomen was not localized. Patient lay on his back with his legs drawn up, and his trunk bent over to the right side, as if to relax tension on the right lumbar region. Dulness to superficial percussion extended forward nearly to the anterior axillary line, interfering with the region of the colon. There was no bulging in the loin.

The pain was more or less constant, and so severe that the patient cried from time to time during the day of admission, and had one-eighth grain of morphine in the afternoon. Fomentations had been used at home, and were continued after admission, and seemed to give some relief when they were freely applied.

There was no appearance of shock. The pulse, on admission, was about 108, respirations 40, and temperature that afternoon 101.2°.

From early morning till 8 P.M. he had only passed seven ounces of urine, and this was quite free of blood.

Two days later it was noted that the condition was much as before, except that while the pain was less severe and the tenderness more localized to the right side of the abdomen, it was possible to feel a more definite resistance in that region.

An incision was made parallel to the last rib and about a fingerbreadth below it. On dividing the lumbar aponeurosis, black blood in more or less clotted condition escaped, and was removed with fingers and swabs to the amount of what seemed a pint. The kidney itself was found torn, or fractured across, and separated from the ureter and blood-vessels. On removal of the two portions, the fractured surfaces were covered with a layer of firm clot. The surface of the kidney showed patches such as are usually associated with embolism, alternating with areas darkened by extravasated blood. Only one vessel was tied, a vein connected with the upper fragment. Little or no arterial bleeding was seen.

The wound was stitched in part, and packed with iodoform gauze, and gave no further trouble till a month later (October 20), when on taking off the dressings Dr. Rutherford was surprised to find some pouting granulations in the middle of the scar, and on exploring the sinus found a piece of gauze packing which had become buried. Its withdrawal was followed by suppuration, which necessitated the use of a drainage-tube for a few days.

On the day of admission the patient passed seven ounces of urine in the first twelve hours; during the next day, twenty-nine ounces; on the day of operation, seven ounces; on the next day, twenty-one ounces; on the day following twenty ounces was collected, but some was lost owing to his having his bowels moved by medicine. On the day following that forty-six ounces was recorded; and thereafter it seemed that good compensatory action had been established.

The chief points of interest in this case are the mode of injury, the possible fallacy

due to the disappearance of blood from the urine, and the otherwise mild character of the symptoms.

As regards the first of these, the boy was of opinion that he was thrown with his right side against a car. While he may be quite right as regards this, it is to be noted that there was no superficial mark of injury, and it is suggested that we have here an example of rupture by indirect violence—in fact, by sharp flexion of the trunk, crushing the kidney.

The disappearance of an immediately produced hematuria suggests three possibilities:

1. That the injury has been only slight.
2. That the ureter is blocked by clot.
3. That the ureter, with or without the vessels, is completely torn across.

In this case, the first of these was disposed of by the diminished amount of urine passed, the presence of a considerable tumor, and the febrile condition. As between the second and third, it seems that no opinion could be formed without the knowledge gained by operation, and that on this ground alone operation was called for, besides the reason which exists in the possibility of later infection and suppuration in and about the extravasated blood.

Such a case, with its circumscribed extravasation of blood, differs in important respects from those in which the blood escapes into the peritoneal cavity, and also from those in which, with or without primary invasion of the peritoneal cavity, the colon or the duodenum is involved. That this latter complication ever happens in indirect violence is not thought to be likely.

HYPODERMIC INJECTIONS OF CORROSIVE CHLORIDE IN THE TREATMENT OF SEPTIC FEVERS.

CACCIOPPOLI (*La Semaine Médicale*, No. 50, 1900), who has performed a number of successful experiments upon patients suffering from septic fever incident to persistently suppurating wounds by daily subcutaneous injections of about one-fifth of a grain of corrosive chloride, states that in one or two weeks the fever disappeared entirely, and that there was a great improvement in the general condition together with a marked tendency toward cicatrization of the lesions. In one case these chloride injections were begun before the febrile reaction was thoroughly established, and though the wound discharged fetid pus abundantly, there was absolutely no febrile reaction. Caccioppoli advises preliminary injections of sublimate before serious operations when suppuration is likely to result.

ON SOME DISAPPOINTMENTS OF SURGERY.

Under this title D'ARCY POWER (*The Lancet*, No. 4034, 1900) discusses minor unsatisfactory results of operations due to two causes—either promising too much on the part of the surgeon, or undue timidity. He bases his remarks upon his long experience, and begins with the operations of circumcision and for harelip, and he states there are few which give more disappointing results.

In regard to circumcision he notes that the cut surface of the prepuce contracts adhesions of the glans.

The recurrence of adenoids he deplores as due not so much to imperfect technique as to an active development of these growths. Hence he cautions against promising too much as a result of removal.

The greatest disappointments, the writer states, occur in connection with abdominal operations, particularly those carried out upon the kidney. He notes his failure to find stone in exploration when it is strongly suspected, and the difficulty experienced in anchoring a floating kidney; in one case the kidney became freed again, and a lumbar fistula formed. He states that in his experience he has had fistulæ form after excision of the spleen, after strangulated hernia, after the removal of the appendix, after ovariotomy, and after opening the gall-bladder. The fistulæ forming after complete healing of the wounds he attributes to infected silk ligatures, and therefore strongly advises that these be boiled.

Operations on the vermiform appendix offer so many disappointments that it is never wise to promise a patient or his friends too much beforehand. There comes, first, the immediate disappointment at the time of operation incident to the inability to remove the appendix. Twice he was unable to find this organ.

The mental disturbances following surgical operations sometimes form a remarkable series of disappointments. The author presents thirty-five cases which occurred in his practice, one so unusual that it is worth quoting. A woman thirty-five years old suffered with varicose veins. She was subjected to operation, many veins being ligatured, and

amongst others the internal saphenous vein high up in the thigh. The wounds had been closed, dressings had been applied, and the patient was ready to leave the operating theater, when the spica bandage was suddenly soaked with blood. The dressings were hastily removed, the wound in the groin reopened, and a large hole was found in the femoral vein. The vein was at once exposed and ligatures were passed round it above and below the rent. The vein was then divided, its walls being little thicker than a piece of tissue paper, and the wound was again closed. This patient became garrulous and semi-idiotic at the time of her recovery from the anesthetic. Macphail is quoted to the effect that in a total of 990 admissions into the insane asylum, there were forty cases of insanity occurring after surgical operations.

INTRACRANIAL EXTIRPATION OF THE GASSERIAN GANGLION WITHOUT LIGATURE OF THE MIDDLE MENINGEAL ARTERY.

DOLLINGER (*Medical Press*, No. 3215, 1900), impressed by a serious complication offered by the wounding of the middle meningeal artery in the operation and removal of the Gasserian ganglion, and noting that a number of skilful surgeons had been greatly troubled by this complication, examined one hundred skulls with the idea of discovering whether it were not possible to remove the ganglion without wounding this artery. He noted that in six of these skulls the median margin of the foramen spinosum lay in front of the hinder margin of the foramen ovale; in thirty-five it lay in the same plane as the hinder margin of the foramen ovale; in fifty-nine it lay behind the hinder margin of the foramen ovale. Moreover, the bony bridge which separates the foramen ovale from the foramen spinosum was wanting in five skulls. In these cases, therefore, the middle meningeal artery lies in the posterior external excavation of the foramen ovale, and in the same plane as it. Hence, it would seem that in fifty-nine per cent of cases the place of entrance of the middle meningeal artery lies so far behind the foramen ovale—*i.e.*, behind the place of exit of the three roots—that the ganglion can be approached without requiring the ligature and subsequent division of the artery. In thirty-five per cent of cases the ganglion may be removed without ligature of the artery if it is approached anteriorly, the second root leaving the skull further forward. In other words, in about ninety-six per cent of cases the Gasserian ganglion may be removed without previous ligature of the artery. The author has performed the operation five times in all. He opens the skull in the temporal region and bends back the flap formed of skin, muscle, and periosteum; the finger is then introduced between the dura and base of the skull until the middle meningeal artery is reached. Before this the dura mater is peeled off from the second and third divisions of the trigeminus by means of an elevator with a blunt point; this instrument being introduced from outward and medianward to upward and backward. The Gasserian ganglion is easily separated, partly from the base of the skull and partly from the dura; it is seized by forceps and dragged out together with the trigeminus root, the two divisions of the trigeminus above mentioned having been previously cut across. He lifts the brain with an elevator 1½ centimeters wide, and slightly bent on its flat side. This he holds in his left hand, operating by the aid of a light projected by an electric reflector. Thus performed, the first operation took twenty-nine minutes; the second twenty minutes. The average duration of the other three cases was thirty-eight minutes.

There are exceptional and rare cases in which during the whole operation only a few drops of blood may be lost. In some cases there is severe hemorrhage from the diploe. There is always more or less blood from the emissaries and the veins of the dura mater. But little attention need be paid to this. The assistant turns the patient's head slightly to one side with the hole downward so that the blood may escape from the base of the skull, while the operator projects a sufficient light into the skull, in a direction slightly downward, and isolates the ganglion as rapidly as possible. In six cases the author carried out the operation in this manner, and sharp bleeding from the sinus only occurred after the withdrawal of the ganglion from the sinus. In the first two cases, in order to arrest the bleeding from the sinus a small plug of iodoform gauze was placed between the skull base and the dura mater, leaving the end hanging from the wound, removing it after a few days. In the other four cases plugging was not attempted, but instead the brain was allowed to drop back to its place, and the skin flap was sutured. The bleeding probably stopped immediately, since the recovery of the patients was uninterrupted.

In one sclerotic subject, aged sixty-five, when the bone-flap was made severe bleeding occurred forthwith, and on separating the dura mater from the base of the skull, such a profuse hemorrhage set in that it entirely obstructed the view. This could not be checked by plugging, and the operation had to be abandoned.

The author states that the prompt discovery of the external carotid artery is a maneuver with which every operator should be familiar.

THE CONDITION THREE YEARS AFTER OPERATION OF FIFTY SUCCESSFUL CONSECUTIVE OVARIOTOMIES.

MALCOLM (*The Lancet*, No. 4033, 1900) reports that three years after operation of ovariotomy he is able to state that thirty-two of fifty patients are in excellent health. Ten are more or less invalided, three are dead, and five have been lost sight of. Two of the fatal cases died from malignant trouble. The histories of many of these cases are reported in detail.

THE IMPORTANCE OF PRELIMINARY TREATMENT FOR INTRANASAL OPERATIONS.

SEILER (*Medical Record*, October, 1900) institutes preliminary treatment after a careful examination of the case has been made, and he feels satisfied that many if not all the concomitant symptoms can be traced directly or indirectly to the presence of abnormal and pathological conditions within the nasal cavities, and that a removal of these conditions is necessary for a cure of the ailment.

First of all, the patient should be directed as regards diet and hygienic measures. Such tonics as may be indicated for the purpose of toning up the system and counteracting any of the effects of general dyscrasias, if such are present, should be given. Among the hygienic measures, bathing of the neck and the upper portion of the chest and back with cold water or salt and water (one teaspoonful to one pint of water), morning and evening, followed by gentle drying of the skin with a soft Turkish towel, without friction, will be found very grateful and beneficial in those cases which are prone to acute congestion or inflammation of the mucous membrane of the upper air-passages. It regulates the capillary circulation and hardens the skin of the neck and throat so as to withstand the frequent shocks of changes of temperature about the region of the neck, such as are caused by draughts of cold air striking the skin.

The local treatment of the nasal and nasopharyngeal mucous membrane should begin with a thorough cleansing of the nasal cavities by the patient twice daily with a bland antiseptic solution of the proper density and temperature.

What may be called the natural method, or, as some patients have graphically described it, "drinking through the nose," will be found to be at once easily taught and easily learned by the patient, and to be efficient without being harmful. It consists in placing two ounces of the blood-warm solution in a small tumbler or cup, placing the end of the nose within the rim of the tilted vessel until the liquid enters the nostrils, then closing the mouth, and by a moderate inspiratory effort drawing the solution into the nose and nasopharynx, thus bringing it in contact with all parts of the nasal mucous membrane. The vessel should then be quickly removed from the nose and the liquid within the nasal cavities be blown out through both nostrils at once, and the process repeated until the liquid in the vessel is exhausted. If this cleansing process is faithfully carried out by the patient morning and evening, considerable advance toward the removal of congestion or inflammation will be observed. In the paroxysm of hay-fever or acute coryza the greatest possible relief is experienced by the patient in a very short time, provided, however, that the solution is of the proper density and is unirritating.

This cleansing process should be continued by the patient, while local applications of mild astringents and alteratives to the mucous membrane of the anterior and posterior nasal cavities are made by the surgeon at intervals of a day or two. All the numerous astringents in solution with the atomizer and in powder form as snuff have been used with more or less success, but the iodine solution in glycerin (iod. met. gr. viij, glycerin f ʒ ss, potass. iodid. gr. xxiv) has proved more universally useful than any other local remedy. It is best applied with a pledget of cotton on the end of a delicately armed applicator, which should be carried through the nostrils along the lower meatus into the nasopharynx on both sides if it is possible to do so, which manipulation should be executed as gently as possible.

Cocaine in any shape or strength of solution should never be used in the nasal cavities except as a local anesthetic for minor

intranasal operations, in which capacity it is invaluable. As its primary effect is a contraction of the capillaries of the nasal mucous membrane, its application, it is true, affords immediate but evanescent relief from the nasal obstruction due to turgescence of the blood-vessels and venous sinuses in the turbinated tissue; but after cocaine has lost its effect a reaction takes place which calls for a fresh dose of the drug, and the patient for the sake of temporary relief, as in hay-fever for instance, becomes addicted to the use of cocaine and cannot exist without a pledget of cotton saturated with cocaine solution in his nose. This habitual use of the drug has a relaxing effect upon the tissues, which become flaccid and pale; and any operation, no matter how trivial in its nature, undertaken when the nasal mucous membrane is in this condition, and is kept cocainized afterward, is apt to be followed by extremely slow repair. This effect of the drug, however, is a purely local one, and the effects of cocaine upon the general system are but rarely observed in these cases of "nasal cocaine fiends," probably because absorption of the drug does not take place through the anterior portion of the nasal mucous membrane.

This preliminary treatment, as outlined here, should be kept up for several weeks, the local applications being made, as stated, at frequent intervals, until a comparatively healthy appearing mucous membrane shows on examination.

TREATMENT OF HERNIA IN CHILDREN.

OCHSNER (*Journal of the American Medical Association*, vol. xxxv, No. 25) believes that too much stress has been laid on the importance of trusses in the treatment, and too little on removing the causes, of hernia in children.

It is far easier to retain a hernia, and thus encourage the closure of the hernial opening, by first relieving the abnormal intra-abdominal pressure and then applying the truss simply as an aid, than it would be to accomplish the same object by the use of the truss alone.

If it is at all possible, it is always best to place the child in bed in the inverted position and to reduce the intra-abdominal pressure before making use of a truss at all. Then, if it is not possible to maintain this position sufficiently long to obtain a cure, it is well to apply a perfectly fitting truss.

The fact of using a truss does not make the other precautions unnecessary. The child should still be cared for so as to remove abnormal intra-abdominal pressure from every cause, and the foot of its bed should still be elevated in order to make use of gravity in keeping the hernia empty and to facilitate the shortening of the mesentery.

His observations and a study of the available literature on this subject have led the writer to accept the following conclusions:

1. The development of hernia in children is favored by (*a*) faulty development of the abdominal wall; (*b*) insufficient strength in the tissues involved in closing the umbilical, inguinal, or femoral openings; (*c*) abnormal intra-abdominal pressure; (*d*) unclosed condition of the tunica vaginalis.

2. The causes *a* and *b* are likely to be inherited.

3. The abnormal intra-abdominal pressure is due (*a*) to gaseous distention resulting from improper feeding; (*b*) to the exertion necessary to accomplish defecation in case of chronic constipation; (*c*) to the same exertion necessary to evacuate the bladder on account of obstruction due to phimosis; (*d*) to severe, long-continued coughs.

4. A large majority of all cases of hernia in children will heal spontaneously if the increased intra-abdominal pressure is relieved, the hernial sac being kept empty.

5. This can be accomplished by means of trusses, or, much more rapidly, in inguinal and femoral hernia, by placing the child in bed with the foot of the bed elevated, the time required usually not exceeding six weeks.

6. Children with a tendency to the formation of hernia should be guarded against developing coughs.

7. Their diet should be given at regular times and chosen with a view to avoiding gaseous distention.

8. Constipation should be entirely prevented.

9. In case of boys, phimosis should be relieved if present.

10. Badly nourished and badly cared for children of the poor should be treated in hospitals, being placed in bed in the inverted position, the cause of increased intra-abdominal pressure being removed at the same time by proper treatment.

11. Operation is indicated (*a*) in strangulated hernia; (*b*) in irreducible hernia due to adhesions; (*c*) in case the opening is unusually large in a free hernia, especially if the condition is hereditary and the hernia cannot be

retained by means of a truss; (*d*) in reducible hydrocele.

12. Except in class *c*, the operation should consist simply in carefully dissecting out the sac, ligating it within the abdominal cavity, cutting away the sac and permitting the stump to retract within the abdominal cavity, and simply closing the wound in the skin.

13. The recumbent position, with the foot of the bed elevated, is of very great importance in the operative as well as in the non-operative treatment of hernia in children.

14. If the child cannot be kept in this position sufficiently long, a well-fitting truss should be worn night and day until there has been no protrusion for at least six months, at the same time the precautions being constantly taken to guard against intra-abdominal pressure from any cause.

RESECTION IN TUBERCULOUS DISEASE OF THE HIP.

KIRMISSON (*Rev. d'Orthop.*, No. 3, 1900; *British Medical Journal*, No. 2085, 1900), in reviewing a recent discussion at the Société de Chirurgie de Paris on the surgical treatment of hip-joint disease, states that he has been led to form a very unfavorable estimate of the utility of resection for such disease in young subjects. This operation, he states, is undoubtedly a serious one, is often followed by return of the disease, and its results from an orthopedic point of view are inferior to those of a strictly conservative treatment. Strong objection is raised against the frequent practice of making free incisions into cold abscesses associated with hip-joint disease and spinal caries. As soon as such an abscess is accessible the author treats it by simple puncture, and the injection of iodoform and ether. By such treatment practiced under strict aseptic precautions septic mischief, which so often occurs after free incision, may be avoided. Much stress is laid on the importance of rest in bed during the whole of the acute stage of hip-joint disease. This view, it is stated, is confirmed by the fact that there is now a general tendency in the surgical practice of the United States and other countries to discontinue the ambulatory method of treating coxalgia. This method, it is held, is likely to provoke corrosion of the articular surfaces, and thus to result in suppuration and deformity of the joint. The patient, Kirmisson asserts, should be kept at rest until the affected limb is quite free from pain.

CHOLELITHIASIS.

WÖLFLER (*Medicinisch-Chirurgisches Central-Blatt*, No. 49, 1900) in the course of a paper upon this subject notes the mortality of cholelithiasis operations performed by German surgeons as about five per cent, while the statistics of single operators show three per cent. In operations for stones lying in the common duct, the mortality is fifteen per cent. Bräum, in chronicling 216 cases, notes that the mortality was twenty-five per cent. As to internal treatment, Naunyn notes that of 150 cases treated medically for a short period, 4.6 per cent died, while forty per cent were cured. A marked contrast to this is the seventy-five per cent of radical cures following operative treatment. It is true that a sufficient number of cases have not yet been observed to determine how radically and completely operation cures. It is generally accepted, however, that when all the gall-stones are removed at the time of operation, a recurrence of symptoms is rare, Petersen noting but a single recurrence in seventy cases. Kehr, however, states that in about fifteen per cent of his cases there was a return of suffering. This may be due to adhesions, to hernia, or to narrowing of the common duct.

THE SURGERY OF CHRONIC ULCER OF THE STOMACH AND ITS SEQUELÆ.

MOYNIHAN (*British Medical Journal*, No. 2084, 1900) classifies as follows the various conditions resulting from chronic inflammatory processes in or near the stomach:

1. Temporary, intermittent narrowing of the pylorus, reflex in character, the result of muscular spasm. This condition is largely or entirely dependent upon chronic ulcer of some portion of the stomach.

2. Circumscribed or annular fibrous constriction at or near the pylorus.

3. Diffuse cicatricial induration at or near the pylorus or first portion of the duodenum.

4. Cicatricial contraction and induration with adhesions between pylorus, duodenum, abdominal wall, liver, gall-bladder, etc.

5. Cicatricial contraction and induration at the site of an ulcer situated in the body of the stomach, giving rise to the condition known as "hour-glass contraction."

6. Adhesions external to, and primarily independent of, the stomach and duodenum originating in inflammatory conditions of the gall-bladder, bile-ducts, etc., or rarely in traumatism (Krönkein).

The symptoms of stenosis are dependent upon the consecutive dilatation of the stomach; a dilated stomach being defined as one which is unable to evacuate its contents into the duodenum within the normal period of time. "Gastric stasis," as it is called, results, and food is retained in the stomach for two, three, or more days. So long as a stomach, even though deformed by rigid cicatrices or invaded by malignant growth, is able to empty itself in the normal limits of time, symptoms of moment are lacking.

A close examination of the history of patients suffering from fibrous stenosis of the pylorus will reveal in a certain, and probably not small, proportion of cases evidences of antecedent ulceration of the stomach. The period of intense or active ulceration is so well developed that it is referred to as an "attack" lasting some days or weeks. After this there is a period of quiescence. But at no long interval of time there are troubles which are grouped under the widely comprehensive term "indigestion." Grumbling discomfort or subacute pains are experienced two or more hours after food, and thereafter increase gradually in severity. Vomiting may occur, and the ejected material is seen to consist of ill-digested food, the taste of which is bitter and nasty. As the case becomes more chronic pain becomes less aggressive, but a sense of distention and of local anger after meals is commonly present. Vomiting occurs at increasingly long intervals. The stomach during, perhaps, many days gradually fills with food, which is there stagnant and undigested. When the limit of capacity is reached, there is an attack of vomiting—terrific, gushing, copious. In the ejecta, foods taken days before may be recognized unaltered, or the taste of them may be perceived by the patient. After this outburst there is quiet for a few days, when the stomach, again distended, is again emptied. Meanwhile the health of the patient suffers; he loses flesh, becomes sallow, pinched, and withered in appearance. Thirst is always present, and the mouth and tongue are dry, harsh, and hot.

The frequency and the severity of the pain depend not upon the dilatation of the stomach, but rather upon the activity of any ulcer which is present. An ulcer of the pylorus or duodenum which is embedded in a mass of cicatricial infiltration which it has produced probably heals with difficulty, and when healed is liable with trivial hurt to break down. There is no grievous pain unless ulceration or adhesions are present. A dilated stomach causes merely a passive and endurable sense of fulness, weight, heat, and increasing discomfort. If ulceration be present, there will probably be local tenderness in the epigastrium, pain in the lower dorsal region, and occasionally gastrorrhagia and melena.

When the symptoms of pyloric stenosis, apart from ulceration, are alone present, the patient is not long in recognizing that his bodily comfort and sense of well-being are dependent upon his maintaining a moderately empty stomach. Vomiting is therefore self-induced, or the aid of the stomach-tube is invoked. The relief experienced from lavage is very considerable, and is as a rule instantly appreciated; but after months of its employment, the unbroken and inevitable routine becomes often irksome and distressing.

In all cases of gastric dilatation, even the most passive, there are occasional outbursts of acute pain, more frequent vomiting and retching, and occasional hiccough. In general a distinct irritative cause for these inflammatory attacks can be remembered.

In the surgical treatment of the various cicatricial conditions found in and around the pylorus, any of the following operations may be found necessary:

1. Pyloroplasty, gastroplasty.
2. Gastroenterostomy.
3. Pylorectomy.
4. Gastrolysis.

Pyloroplasty, or the transverse division of the stricture and the stitching of the wound in a vertical direction, is an operation of limited applicability.

The cicatricial processes occurring in an ulcer situated at or in close proximity to the pylorus result in permanent stenosis, and contractions of widely variant form. In the first variety described above, the narrow annular or partially annular stricture, pyloroplasty is the simplest operation, and is attended by small risk and by great and lasting advantage. In cases of pyloric spasm it is theoretically more appropriate than any other operation. The incision dividing the stricture must be at least two inches in length, and may with advantage be more.

It has been said that the risk of subsequent contraction of the scar in pyloroplasty is an emphatic reason for the preference being given in all cases to gastroenterostomy. The recurrence of stenosis is due rather to fault in selection on the part of the operator than to any inherent malice in the method. Three

points in this connection deserve special attention in order to insure success.

1. The scar of the ulcer must be small in size, especially in width, and be sharply defined. There must be no cicatricial infiltration with the exception of the small sclerosed area, and the bowel walls must be soft and supple.

2. The incision dividing the stricture must be of adequate length, and must be continued on each side, well into healthy tissue.

3. There must be no peripyloric adhesions of any, even of the most trivial, kind.

In appropriately selected cases there can be no likelihood of recurrence.

Gastroenterostomy is an operation far more frequently called for than pyloroplasty. In the third and fourth above mentioned varieties of pyloric stenosis following ulcer, it is the method of choice, and as these forms are decidedly more frequent than all others, the operation must in consequence have a far larger scope.

The method of simple suture is the one Moynihan adopted in his last four cases, malignant and non-malignant. It is with practice possible to apply the suture without haste in from four to eight minutes, and greater speed than that is rarely necessary.

One unquestioned advantage gained by the use of mechanical appliances seems to be the security they give during the period when the operator is making himself adept in the technique of intestinal manipulations.

The operation is performed in the following manner:

The abdomen being opened by an incision about three-quarters of an inch to the right of the linea alba, the jejunum is sought for by passing the finger down to the left of the spine and feeling for the inferior duodenal fold. Immediately above and to the right of this is the duodenojejunal flexure, from which the jejunum can be traced. A loop of this bowel is then pulled out, emptied, and constricted by an elastic ligature. The stomach is pulled into the wound from above, and a long strip of gauze is packed all round the two viscera. A continuous silk suture is then applied for three inches, uniting the jejunum to the stomach along an oblique line, whose higher end is toward the cardiac orifice. The jejunum and stomach are then in turn laid open in the following manner: An incision 2 to 2½ inches long is made through the serous and submucous coats only; as they are divided they retract, and an ellipse of mucous membrane over half an inch wide in the center, and narrowing off at each end, points into the wound. Two pairs of nibbed forceps, one toward each end, grip and pull upon the ellipse of mucous membrane, which is then excised. A close continuous catgut suture then unites accurately the posterior edges of divided mucous membrane, and at one extremity is tied to a separately knotted suture, which is then carried round, uniting the anterior lips. Finally the serous membrane in front is united by a continuous silk suture. It is believed the removal of this ellipse of mucous membrane and the accurate suture of the edge are advantages in that they tend to prevent the closing of the anastomosis from swelling or pouting of the cut edge.

After the anastomosis is complete, apply two or three sutures to the proximal portion of the jejunum to fit it to the stomach at a higher level, and one or two to the distal portion near the greater curvature. To this disposition—which he adopts, whatever the method of suture—he attributes the absence of the regurgitation into the stomach of bowel contents, which has been so frequently remarked. It is important in applying the sutures to make sure that the opening in the jejunum is at that part most distant from the mesenteric attachment. There is a tendency to apply the side of the jejunum to the stomach, and thereby to invite the formation of a spur, to which has been attributed importance as a causative factor of regurgitation.

It has been frequently observed that regurgitation after the use of the Murphy button is most unusual, and the writer believes this is due to the fact that the intestinal half of the button must be introduced at the portion opposite to the mesentery.

There can now, Moynihan thinks, be no doubt that in all cases of gastroenterostomy, performed by whatever method, there is invariably and almost continuously some bile present in the stomach. The presence of bile and pancreatic juice in the stomach was formerly considered to be a matter of serious import, and even to be lethal. A case of his own, however, in which all the bile and all the pancreatic juice had, after suture of the duodenum at the duodenojejunal flexure, to pass into the stomach through the pylorus, and thence into the jejunum implanted in the anterior wall of the stomach, suffered no disability of even the most trivial kind. Bile and pancreatic juice in the stomach do not

affect in the least the health, comfort, or general well-being of the individual. The supposed advantages of posterior gastroenterostomy in preventing regurgitation of these fluids are therefore not worth considering. Moreover, Chrumskij, in reporting ten cases in which the parts were examined post-mortem after gastroenterostomy by suture, says that in not one of them was the opening found of sufficient size, and this he attributes to inaccurate suture of the mucous membrane. It is necessary therefore to make an opening which appears decidedly larger than is necessary. If this be done, and if the mucous membrane be removed in the manner described and accurately sutured, there will be no fear of undue contraction at any subsequent period.

The improvement in health and general condition of the patient after successful gastroenterostomy is most striking. Appetite returns, with the power of appeasing it. Food is taken with relish, pain is altogether lost, weight is gained, sometimes with amazing rapidity, and the patient experiences that *joie de vivre* which comes with a return to bodily health.

TREATMENT OF NOCTURNAL ENURESIS BY MASSAGE OF THE VESICAL NECK.

GERBSMAN (*La Semaine Médicale*, No. 50, 1900) treats nocturnal incontinence of urine by massage of the vesical neck practiced through the rectum. The patient is placed in the knee-chest position, and with the index finger stroking manipulations increasing in force are practiced for two minutes, followed by sudden intermittent pressures and vibrations.

Treatment is repeated every day, and the cure results, according to Gerbsman, after three to eight treatments.

HOUR-GLASS STOMACH AND PYLORIC STENOSIS TREATED BY GASTROENTEROSTOMY.

MARTIN and POLLARD (*British Medical Journal*, No. 2084, 1900) report a case of hour-glass stomach in which, as they note, a gastroenterostomy was performed successfully, but was not followed by any improvement in the patient's condition, since the anastomosis was accomplished between the second compartment of the stomach and the intestine, and hence did not overcome the obstruction which was the main cause of difficulty, which lay in the stomach itself. The operation required a half-hour for its performance. The patient perished on the fifth day.

Reviews.

DISEASES OF THE NERVOUS SYSTEM. A Text-book for Students and Practitioners. By H. Oppenheim, M.D. Authorized Translation by E. E. Mayer, A.M., M.D. First American from the Second Revised and Enlarged German Edition. Freely Illustrated.
Philadelphia: The J. B. Lippincott Company, 1900.

The publication of this European classic by an American publisher should be hailed with pleasure by those physicians who are not sufficiently familiar with the German language to enable them to read the original text. Professor Oppenheim has so thoroughly placed his imprint upon modern neurology that anything that he may say in regard to diseases of the nervous system is certainly worthy of our careful attention. The work, while it is complete and conclusive, is not one of the more voluminous compilations upon nervous diseases, and so lends itself to the hand of the busy practitioner who wishes an accurate work of reference without having to read an exhaustive discourse upon each individual form of nervous disease. The translator's work is very well done, and we would not know that the book had been translated from the somewhat diffuse and verbose German text.

THERAPEUTICS: ITS PRINCIPLES AND PRACTICE. By Horatio C. Wood, M.D., LL.D. Eleventh Edition. Remodeled, and the Greater Part Rewritten, with the Assistance of Horatio C. Wood, Jr., M.D.
Philadelphia: The J. B. Lippincott Company, 1900.

It has been well said that Dr. Wood's book on Therapeutics occupies almost the position of a classic in medical literature; for without doubt the claim which he set forth in the preface to the first edition is correct, that no careful attempt to consider therapeutics in its relation to the physiological action of drugs had at that time been made. With the object of obtaining the services of younger blood Dr. Wood has associated his son with him, and the result has been quite a different plan in the arrangement of the text. The classification of drugs is practically unaltered; but at numerous places through the work — indeed, after the consideration of the physiological action of all important remedies—a summary of the author's belief in the physiological action of a given

remedy is printed in type considerably larger than that of the ordinary text, thereby overcoming the great difficulty which hitherto existed for students of this work, namely, that after having read an article they did not know what Dr. Wood really thought himself.

The book suffers in our opinion from a fault which is absolutely inseparable from all works in which drugs are classified according to their physiological action—namely, the necessity of including, under certain classes, drugs which physiologically possess certain influences for which they are never used in medicine. Thus, it certainly seems odd to find under "Antipyretics," thymol, benzoin, benzoic acid, and menthol; also to find that acetic acid or vinegar and tartaric acid are included under "Cardiac Depressants." In the article upon Ether we do not find any reference made to the papers and statistics collected by Dr. Weir of New York, or Deaver of Philadelphia; and in the article upon the Bromides, the statement is made that "it is essential in epilepsy and other chronic disorders to persist in the continuous administration of the bromides it may be for years." This we do not think is in accord with the opinion of most alienists who are in charge of large numbers of persons, to whom bromides are often given by an ordinary practitioner, and readers of the GAZETTE will remember that papers have appeared in our pages within the last two years which indicate that this belief on our part is correct.

On the other hand, a careful examination of the work from cover to cover shows that its authors have taken up a large amount of literature which has appeared since the last edition was published, that they have digested it thoroughly, and that they have successfully separated the useful from the useless.

The book stands to-day, as it has stood ever since it was first published, a standard work dealing with the physiological action and therapeutic application of drugs to the treatment of disease.

A COMPEND OF SKIN DISEASES. By Jay F. Schamberg, M.D. Revised and Enlarged.
Philadelphia: P. Blakiston's Son & Co., 1900.

Two years ago we referred in pleasant terms to this little manual of skin diseases, which seemed to us then to be most excellent. Since that time Dr. Schamberg has shown himself to be a capable investigator into skin diseases of various kinds, and has made contributions to medical literature which are creditable indeed. This is a compend, and therefore a compilation of much information found in other much larger works. The illustrations, in the majority of cases, seem to be original, and whenever they are original are unusually good. The work is filled with useful prescriptions, and as far as we have been able to observe is cordially to be commended, not only because it is good, but also because dermatology lends itself to condensation of this kind better perhaps than other specialties which have a wider range in medicine.

MEDICAL EXAMINATION FOR LIFE INSURANCE. By Charles Lyman Greene, M.D.
Philadelphia: P. Blakiston's Son & Co., 1900.

Dr. Greene has given us an octavo volume of over 400 pages in which the various conditions influencing risks in life insurance are carefully studied. The first chapter deals with the nature and growth of life insurance, and after this other chapters follow upon the medical examiner and his problems. Instructions in diagnosis, heredity, and occupation as influencing longevity are considered, and then follow other chapters with directions as to the methods to be employed in examining the thoracic organs, those of the abdominal cavity, and the kidneys. Finally, a most important chapter deals with the insurance of substandard lives. The closing chapters are devoted to attempts to defraud insurance companies and accident insurance companies. From this summary of the contents of Dr. Greene's work one can see that it includes most of the important facts with which the medical examiner has to deal. The illustrations, of which there are nearly one hundred, seem to us unusually good, and in many cases are original. Unlike many other books, this one is printed with annotations on the margin of each page, which gives one a key to the contents of the various paragraphs. The paper is excellent and the type clear and large. There are now many physicians all through the country who continually engage in the work of examining for life insurance, and to them we can most cordially commend this work.

THE CARE OF THE CONSUMPTIVE. By Charles Fox Gardiner, M.D.
New York and London: G. P. Putnam & Sons, 1900.

This is a small octavo volume of less than 200 pages dealing with the method and feeding of tubercular patients. It is evidently intended, from the character of its text, more for nurses and the patients themselves, or for the friends of patients, than for medical men,

and is dedicated to Dr. E. L. Trudeau, of Saranac, New York, whose work in the study of tuberculosis in the Adirondacks is so well known, and is so deserving of our highest regard. The little volume closes with a series of "Don'ts" which seem to us peculiarly well fitted to the class of patients for whom they are prepared.

A PRACTICAL TREATISE OF MATERIA MEDICA AND THERAPEUTICS. By John V. Shoemaker, M.D., LL.D. Fifth Edition. First Students' Edition.
Philadelphia: The F. A. Davis Co., 1900.

In the present volume the author and publishers have decided that it is best to make a radical change, and have divided this work on therapeutics into two parts, one which is to be known as a "Students' Edition," and the other, which is shortly to appear, as the "Physicians' Edition."

In the Students' Edition nothing is included beyond the description of those drugs and preparations which are official in the Pharmacopœias of the United States and Great Britain, together with some of their chemical modifications. In the Physicians' Edition we understand that the therapeutic application of drugs to the treatment of disease is to be more carefully considered. We will be interested to observe how successful this plan of discussing this subject will prove to be. It is manifestly advantageous to certain physicians not to have to buy information concerning facts with which they are already acquainted, and it is also manifestly advantageous to students not to have to dip too deeply into practical employment of drugs until they are required to do so by exigencies of practice. On the other hand, it seems to us that the study of therapeutics and materia medica is made much more interesting to the average student if he feels that he is learning something which can be directly applied to the treatment of cases which will come to his hands in the future.

We doubt not that the book will in any form, divided or undivided, remain as successful in its present edition as it has proved to be in the past, and we cordially wish it success.

ENTEROCLYSIS, HYPODERMOCLYSIS, AND INFUSION. A Manual for Physicians and Students. By Robert Coleman Kemp, M.D.
New York: James T. Dougherty, 1900.

Most of our readers know that Dr. Kemp has for a number of years devoted himself to making physiological experiments which have a direct bearing upon practical medicine. The results of these investigations have been published, most of them in medical journals, and he has now collected and placed them before us in the form of this small octavo of a little over 300 pages. The first portions of the work deal with certain experimental matters, and then with the employment of enteroclysis in the treatment of various infectious diseases. Other chapters deal with enemata and the various methods of washing out the bowel; then succeed others upon the various methods of infusion and the use of the carbonic acid bath in the treatment of cardiovascular diseases. The concluding chapter of the book deals with what he calls "therapeutic addenda," in which a large number of various subjects are treated, extending from the employment of contractile collodion in infiltration anesthesia to the use of antistreptococcic serum.

The book is a useful summary of the work done along the lines that we have named, and is not a text-book, but rather an essay embodying Dr. Kemp's views, most, if not all, of which are worthy of our high regard and esteem.

A TEXT-BOOK OF HISTOLOGY, INCLUDING MICROSCOPIC TECHNIQUE. By Dr. Philipp Stöhr. Third American from the Eighth German Edition. Translated by Dr. E. L. Billstein, and Edited with Additions by Dr. Alfred Schaper.
Philadelphia: P. Blakiston's Son & Co., 1900.

It is but eighteen months since we took pleasure in reviewing the first American edition of this very excellent work on histology, which in many respects seems to us one of the best, if not the best, which has yet been published. In the first place, the translation is very well done. In the second place, the illustrations are admirable, both in scope and in detail, and the type and paper is of such a character that the text is easily read and consequently easily utilized.

As the cost of the book is moderate and all its other qualifications are so excellent, we can commend it with cordiality to those of our readers who are anxious to obtain some work dealing with this subject.

REFRACTION AND HOW TO REFRACT. By James Thorington, A.M., M.D. Second Edition.
Philadelphia: P. Blakiston's Son & Co., 1900.

We note the appearance of the second edition of Dr. Thorington's useful little work within a year after the publication of the first edition with much pleasure. At the time of the appearance of the first edition we commended it highly, and we have been glad to note that other journals have done likewise,

some of the London journals having spoken of it in terms of high praise, and individual ophthalmologists having also stated personally and in reviews that it was an excellent book of its kind. It must be distinctly understood that it does not attempt to deal with the general conditions of the eye, but simply with those subjects which are naturally included under its title.

EXPERIMENTAL RESEARCH INTO THE SURGERY OF THE RESPIRATORY SYSTEM. By George W. Crile, A.M., M.D., Ph.D. Second Edition.
Philadelphia: J. B. Lippincott Company, 1900.

This is an experimental research to which was awarded the Nicholas Senn prize for 1898 by the American Medical Association. It has evidently been practically useful to the profession, since there has been a call for a second edition.

The first series of experiments were conducted for the purpose of determining the cause of the phenomena attending the inhaling of hot air and flame, the experimental evidence tending to show that the direct effects of flame inhaled into the lungs with the upper air-passages excluded are not such as cause sudden death. The next series of experiments were designed to determine the effect of filling the chest with fluid. The author concludes that a double hydrothorax rapidly induced is extremely fatal.

Among other interesting results attained in this study is to be noted the fact that no amount of injury inflicted upon the solar plexus, either directly or indirectly, is capable of causing any inhibitory action upon the heart. Blows delivered upon the lower chest, especially over the cardiac area, commonly cause collapse. The author notes in his studies of drowning and the cause of certain symptoms observed on entering an atmosphere of increased barometric pressure that a sufficient pressure increase in the intrapulmonary system may produce a collapse of the circulation greater than that produced by severing the superior or the inferior vena cava alone.

In the section devoted to the study of foreign bodies Crile shows that irritation, if applied to the middle of the upper portion of the larynx, would cause most profound reflex inhibitory phenomena. The only reflex phenomenon a foreign body below the larynx could produce is that of coughing; while in the larynx not only coughing may be produced upon slight irritation, but upon a greater irritation reflexed arrest of respiration will occur, and on a still greater irritation, in addition to the arrest of respiration there may be reflexed arrest to the heart's action, causing thereby a collapse more or less profound. The symptoms of asphyxia from obstruction need never be mistaken for those of reflex inhibition from the laryngeal area.

In the case of asphyxia from obstruction, the respiration, as well as the circulatory activity, will continue. The pulse will be strong, full, and slow, until finally, after five to eight minutes, there will be intermissions, then irregular actions, then intermissions, until finally the heart ceases in diastole. In reflex inhibition there is sudden collapse, with sudden cessation of respiratory action, and if the circulatory action is also affected, there will be an arrest of the heart as sudden as the arrest of the respiration.

The local application of cocaine upon the laryngeal mucosa, even with so weak a solution as one-half per cent, completely prevents the reflex inhibitory effect upon both the respiration and the heart, no matter to what extent the irritation of the larynx may be carried.

Crile contributes some interesting and useful observations upon laryngotomy, tracheotomy, and intubation.

A CLINICAL TREATISE ON FRACTURES. By William Barton Hopkins, M.D.
Philadelphia: J. B. Lippincott Company, 1900.

This work, admirable in both its subject-matter and its technical execution, is based on the author's enormous personal experience in the Pennsylvania Hospital. It is a noteworthy fact that it is devoted entirely to a practical consideration of fractures and their treatment, and that it puts forth with extreme brevity and clearness the methods which the author's ingenious mind and mechanical ability have combined to make the best. His treatment of fractures of the lower extremity of the humerus about the elbow is by means of an anterior right-angled splint; fractures of the shaft of the humerus require an internal right-angled splint supplemented by the use of a shoulder-cap; fractures of the upper extremity of the humerus imply a wedge-shaped pad in the axilla, base upward, supplemented by careful bandaging and collar-board shoulder-cap extending well down to the elbow; a broad handkerchief sling supports the forearm and hand. Hopkins states that for fractures of the clavicle, a dressing which will be found almost invariably applicable in meeting the various indications, if it is used with careful attention to

every detail, in subjects of both sexes and all ages, is the dressing of Desault, perhaps slightly modified. When this is to be applied there should first be a few days' confinement to bed, if practicable. This Desault dressing is applied in the following manner: A large pad in the axilla, best made of oakum, folded into a piece of Canton flannel or patent lint in the form of a wedge, can be perfectly retained in position by the application of the second roller of Desault. Having placed two layers of lint upon the injured shoulder, beneath the elbow, and in the sound axilla, the third roller is applied. The forearm will then be found to rest against the abdomen, and contact of skin surfaces is prevented by the insertion of one layer of lint. If the subject is fleshy, lint should be also placed in the fold at the bend of the elbow. A comfortable sling padded at the back of the neck and beneath the wrist supports the hand, with the forearm in a state of right-angled flexion. In applying the third roller the numerous turns across the injured shoulder should be made to intersect close enough to the root of the neck to press upon the inner fragment if possible; but a compress at this point is seldom necessary. Remembering that many yards of roller bandage are carried around the chest in the application of these two parts of Desault's dressing, and that each turn increases the aggregate constriction of the chest, too much tension should not be employed. In order to prevent any of the turns becoming disarranged, and also to lessen the tendency of the roller bandage to become slack, one-inch straps of rubber adhesive plaster two yards long should follow the turns of the third roller, and be also carried around the chest and upper and lower parts of the arm. By this dressing fixation as complete as by any other is perhaps obtained, and it may be further promoted by warning the patient to allow his injured shoulder and arm to hang as relaxed as possible; certain it is, that if he is ignorant of the harm he does, he may move his shoulder at will and disturb the fragments, no matter how securely they are retained by any dressing.

In fractures of the patella Hopkins prefers the open method of operation. The plan of non-operative treatment in common use he describes as follows: The limb, with the leg slightly elevated, is placed upon a straight posterior splint; a compress is applied above the upper fragment and secured to the splint in such a manner as to produce downward traction; a roller bandage retains the whole apparatus; and the limb is elevated on pillows on an inclined plane. If the posterior splint be a broad one, provided with cross-pieces, rotating-pins, or notched edges, these furnish points of attachment for the strips which draw the compress above the upper fragment downward.

It is with a feeling of pleasure and satisfaction that the practitioner will read this work. He will get from it what he hopes for but does not always succeed in getting from a consultant—*i.e.*, a personal judgment founded on skilled observation. He will not be confused by a mass of conflicting opinions, or at a loss to know exactly how to apply the treatment that Hopkins believes in and recommends. It is for this reason in part that the work is deserving of the warmest praise.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

A very interesting meeting of the Royal Medical and Chirurgical Society was devoted to a discussion of the parasitology, etiology, and prevention of malaria. In a previous letter I mentioned that the Colonial Office proposed to conduct some experiments on malarial infection in the Campagua, and that Drs. Sambon and Low had offered themselves for the purpose. These gentlemen communicated the outcome of their experiences to the society. In passing it is interesting to note that the association of the mosquito with malaria has been obscurely hinted at long prior to the discoveries of Ross; in East Africa the word "mbù" indicates both the fever and the gnat. This association has been abundantly confirmed by Manson's discovery that the mosquito is the intermediate host of the filaria.

The Campagna experiments were designed to prove the truth or error of the mosquito-malarial theory, and in order to discover how far the necessary protection might be compatible with the ordinary avocations of life. The test was of a twofold character, the first experiment being designed to afford a positive proof, and the second a proof by negative inference. In the first experiment it was arranged that a subject should allow himself to be bitten by mosquitoes reared and infected in a malarious district and then sent

home. The mosquitoes were sent to London, after having been satisfactorily infected from suitable cases in the S. Spirito Hospital; they were sent in gauze tubes enclosed in a square wooden box, with openings on the four lateral sides to allow of free ventilation. The gauze tubes were adopted to prevent as far as possible the bad effects of shaking; the idea was suggested by the observation that mosquitoes rested preferably on cobwebs and did not fly off when the cobwebs were shaken by the winds. On arrival Dr. Manson's son was bitten by these insects and developed the typical symptoms of double tertian ague. A second subject likewise underwent a severe attack of benign tertian fever. The infection of the mosquitoes had been obtained from a patient suffering from benign tertian fever. In the second test two men who had never suffered from malaria were to go into one of the regions known to be undoubtedly malarious and live there throughout the fever season, with no other protection than such as might prevent the bites of mosquitoes, for which purpose they were to be provided with a mosquito-proof hut. The original intention had been to erect the hut in the Cerveletta district of the Campagna, because of its nearness to Rome, but this was abandoned in favor of Ostia, which was pronounced by Italian experts as a far more deadly locality.

Altogether there were four inhabitants of the hut, which contained six rooms. The windows and all the crevices were protected by wire netting having meshes of seventeen millimeters. The windows were left wide open day and night, notwithstanding the forebodings of the neighbors. In spite of this the inhabitants remained in perfect health, so much so that the neighbors from sheer incredulity paid a surprise visit by night to satisfy their unbelief, and having come to scoff remained for advice and quinine. During all this period the population of the district suffered, as usual, severely and universally from malaria; indeed, of some fourteen or fifteen healthy police who were sent down into the district for a single night, all were suffering within a fortnight from an attack of fever. The experimenters found that they could go out freely into the Campagna during the daytime without any fear of being bitten, so that they discarded the original precautions of wearing veils, and not being abroad between one hour after sunrise and one hour before sunset.

The observations were carried on from July 19 to October 19, 1900. In July and August no mosquitoes were seen on the wing during the day, but in September and October, when there were several dull and cloudy days, a few occasionally appeared around the hut. Taken altogether, however, their times were very constant, the time of appearance being a few minutes after sunset, and that of disappearance soon after sunrise. Moreover, in houses in which during the daytime numbers of mosquitoes were to be found, they never attempted to bite the experimenters, who staid and captured them in test-tubes at their leisure. Most of them had evidently fed during the night on people or fowls, or dogs and cats, kept in the living rooms, and were gorged with blood. The only two species of Anopheles found in the district were *Anopheles Claviger* and *Anopheles pseudo-pictus*. *Anopheles Claviger* is by far the more common, and must be regarded as the chief agent in propagating the malarial fevers of the Campagna. In houses they always choose the darkest corners, and it was noticed that when settling on a striped fabric they seemed to prefer the darker stripes. Drs. Sambon and Low conclude that mosquitoes, and only mosquitoes, can transmit malarial fever, that protection from their bite implies absolute immunity, that the protection is easily obtained, and that such protection does not in any way interfere with the ordinary employments of life.

In this connection it may not be out of place to refer to the similar experiments recently made by Professor Grassi at Pæstum. His general conclusions were identical with those of Drs. Sambon and Low, and he further showed that by the use of veils and thick cotton gloves, those whose duties called them out-of-doors between sunset and sunrise could do so with almost complete security.

In an introductory address Dr. Manson pointed out that two things were still required to complete our knowledge of the entire life-history of the malarial parasite: first, what circumstances determine the distinction of the merozoïtes, and whether they proceed to the mosquito phase (the bisexual cycle) or to the human phase (the Golgi cycle); and secondly, what becomes of the parasite during the long latent period which sometimes elapses between exposure to infection and the development of attack. Also we have to explain why crescent forms are so frequent in this country, and in Italy in

late autumn, while they are rarely seen in tropical Africa, or in Italy during the summer or early autumn. Children are specially susceptible to malaria, as many as seventy to eighty per cent of native children contracting the disease under one year of age. The proportion infected becomes progressively smaller up to ten or twelve years, so that apparently among natives some degree of immunity is established. The post-mortem statistics of Hill and Daniels in Demerara confirm this. The former showed that the mortality from malaria was almost exclusively among children, while the latter found that in a large series of autopsies the presence of malarial pigment was at a maximum between two and five years, and in progressively diminishing amounts in each succeeding decade. Manson considers that there are four means available for the prophylaxis of malaria—to avoid natives, to take quinine, to destroy mosquitoes, and to protect from mosquitoes. The difficulty lies in the uniform practicability of these precautions.

Incidentally Dr. Manson alluded to blackwater fever and its relation to malarial fever. There is no ground for assigning blackwater fever to the use of quinine, as many suffer from the disease who have never taken quinine. Nor is it an intense malarial fever, as it is not always found in intensely malarial districts; nor is it a malarial cachexia, for it may occur within a few weeks of arrival in a malarial district. It has been suggested that blackwater fever may be due to a special form of malarial parasite, or to a malarial parasite the virulence of which has been increased by transmission through a particular species of mosquito; but at present these theories lack confirmation.

In a letter from Western Australia to the London *Lancet* Dr. Paget claims to have in the use of olive oil an infallible cure for typhoid fever. He administers an injection of olive oil per rectum every twelve or twenty-four hours; the quantity used for adults is a pint, to be retained if possible for twelve to twenty-four hours. If not returned it may be washed away with a soap and water enema, and replaced by a fresh injection after two or three hours. After a week or ten days the daily use of the injections can be discontinued, and they are given only when the temperature rises or the bowels are confined; he finds it the most effectual of all remedies for the diarrhea of typhoid patients. Occasional doses of calomel are given in addition when the bowels are confined; his only other medicine is a mixture of carbonate of ammonia and decoction of cinchona given every three or four hours. "Patients treated in the above manner in my opinion cannot die," writes Dr. Paget, who anticipates the question, "Were these cases of typhoid fever?" by the statement that Widal's reaction was uniformly found. It would be interesting if Dr. Paget would treat an equal number of typhoid patients under the same conditions without olive oil, to see whether there would be any increase of mortality. For the present, until some tenable theory of its mode of action is advanced, this line of treatment is unlikely to find favor among us.

Dr. Harris records a case of abscess of the liver diagnosed by the presence in the urine of crystals of cholesterine, leucine, and tyrosine. Very soon after the evacuation of the pus the leucine, tyrosine, and cholesterine crystals disappeared from the urine, and the urine became quite normal. It is not unusual, as Dr. Harris suggests, to find these crystals in the urine in acute morbid conditions of the liver, if they are sought for.

Dr. Calvert communicated to the Clinical Society notes of a case of hematoporphyrinuria not due to sulphonal. The patient, a woman, was suffering from recent hematemesis. This association is noteworthy, as Stokvis has argued that the hematoporphyrinuria occurring after sulphonal poisoning is due to the absorption of altered blood from hemorrhages produced by the drug in the mucous membrane of the stomach and intestines—a view which has not been confirmed by post-mortem observations. The blood counts in this case were of special interest, showing a steady increase of hemoglobin and red corpuscles from the original low value, though hematoporphyrin was simultaneously present in the urine. Dr. Garrod suggests that the excessive excretion of hematoporphyrin is due to a perversion of the process disposing of effete hemoglobin rather than to an unduly active hemolysis. This patient seemed to have had a similar attack a year previously, when there was no concurrence of either hematemesis or melena. The patient made a good recovery in the two instances, and throughout the case the hematoporphyrinuria did not appear to give any manifestations of its own. The color of the urine in these cases is not due to the hematoporphyrin itself, but to other associated pigments.

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Therapeutic Gazette.

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NITRATE OF SILVER AND OTHER SALTS OF SILVER IN THE TREATMENT OF INFLAMMATION OF THE MUCOUS MEMBRANE OF THE UPPER RESPIRATORY TRACT.

BY E. B. GLEASON, M.D.,

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At one time nitrate of silver one to twenty grains to the ounce of powdered starch or talc was somewhat extensively used in the treatment of atrophic nasal catarrh. When powders of this description are sniffed into the nose or deposited upon the nasal mucous membrane by means of a powder-blower, they act as irritants and provoke a watery discharge which washes away and prevents the accumulation of semi-inspissated and decomposing secretions.

The method of treatment was for the physician to see the patient once or twice a week, and after cleansing his nose to insufflate powdered starch containing a sufficient proportion of nitrate of silver to cause momentary smarting. Ten to twenty grains to the ounce was usually sufficient for the purpose. The patient was directed to spray his nose with

Dobell's solution once or twice a day, and sniff into it every three or four hours a little powdered starch containing one or two grains of nitrate of silver to the ounce.

This method of treating atrophic rhinitis was fairly successful in correcting the fetor of the breath, and with advantage can be employed at the present time when the patient is unwilling to submit to more modern methods. However, it is well to substitute stearate of zinc for the starch of the older formula; and because the latter powder is very light and bulky, we can use only a drachm for each ounce of starch.

Nitrate of silver fused upon the end of a silver probe is occasionally used for searing the stumps of polyps that have been removed with a snare or for cauterizing exuberant granulations after any intranasal operation; but because of their irritating effects solutions of nitrate of silver are rarely employed inside the nose. However, organic salts of silver may be used to advantage as astringents and antiseptics. They are unirritating to most nasal mucous membranes in solutions of twenty to thirty grains to the ounce, while their bactericidal properties are well marked.

However, as an astringent to the mucous membrane of the nose, the extract of suprarenal capsules or its newly discovered alkaloid adrenalin is the most powerful known. The alkaloid is active in the strength of 1 to 10,000 parts of water, and within sixty seconds after its application blanches the nasal mucous membrane to a creamy white.

Adrenalin 1 to 5000, or the ten-per-cent watery extract of dried suprarenal capsule, applied to the nasal mucous membrane every two hours, either as a spray or by means of pledgets of absorbent cotton saturated with the solution and placed within the nose, furnishes the best local treatment of such diseases as hay-fever and nasal hydrorrhea.

In the auropharynx solid silver nitrate, when applied to moist tissue, is a feeble cauterant, producing a superficial slough. Solutions of silver nitrate produce such very superficial sloughs that they may be classed as irritants; or, when very diluted, as stimulating astringents and antiseptics. The antiseptic properties of the silver compounds should not be lost sight of. If a silver wire be allowed to remain in a culture medium, many of the more common bacteria cease to grow in the immediate vicinity of the silver.

When a solution of silver nitrate is painted upon a mucous surface it is decomposed, and organic silver compounds are formed. These are further decomposed, with the final result of the formation of argentic oxide, which, if in sufficient quantity, stains the tissues a characteristic bluish-black color. Nitrate of silver is an irritant; the organic compounds resulting from its application to mucous surfaces are, however, sedative.

Whether the irritant or sedative effects of silver nitrate predominate, depends largely upon the character of the epithelial layer of the mucous membrane to which it is applied. If a sixty-grain solution be painted upon the posterior wall of the pharynx the irritating quality is manifested and produces discomfort, persisting for some time. If, however, this solution be painted upon inflamed tonsils and the inflamed lateral wall of the pharynx, the primary irritant qualities of the nitrates are scarcely perceptible, and the procedure is followed by a sense of great relief and comfort. Painting the lateral walls of the pharynx with a sixty-grain solution two or three times a day is one of the best methods of aborting acute pharyngitis and tonsillitis. The reddened parts are at once blanched, partly as the result of the astringent effects of the silver and partly as the result of the formation of a closely adherent organic compound of the silver. The sedative effects of the application are so marked that the patient is usually able to at once swallow without much discomfort. The posterior wall of the pharynx should then be painted with a twenty-grain solution of protargol. This treatment, if repeated twice or thrice a day, for two or three days, will in a large proportion of cases abort phlegmonous tonsillitis.

In follicular tonsillitis the abortive treatment of the disease with a sixty-grain solution of nitrate of silver is equally effective, providing the remedy is applied to the affected tonsillar crypts after they have been freed of pseudomembrane.

The following cases will illustrate the method of procedure:

Case I.—Lady about thirty years of age, who had suffered from several attacks of follicular tonsillitis, stated during a morning office call that her throat had been slightly sore since the previous evening. The fauces were red and swollen, and four infected follicles of the right tonsil were filled with a croupous membrane. The nozzle of a Blake's middle-ear cannula was inserted into each of the infected follicles, and a few drops of a fifteen-volume solution of peroxide injected.

The procedure was repeated until most of the pseudomembrane was dissolved or ejected. A few fibers of absorbent cotton were wrapped about the tip of an Allen's probe, which was then bent to a right angle, dipped into a solution of nitrate of silver sixty grains to the ounce, and inserted into the crypts of the infected tonsil. The surface of both tonsils was then painted with the sixty-grain solution of silver nitrate, and the posterior wall of the pharynx with a twenty-grain solution of protargol. At the evening visit the treatment was repeated. The next morning the appearance of the fauces was practically normal, and the treatment consisted in painting the surface of each tonsil with the sixty-grain solution of silver nitrate.

CASE II.—An actress had had chilly sensations for the past twenty-four hours; temperature 101.5°; marked depression and swelling of the cervical glands of left side. She had congested fauces and a slough-like pseudomembrane on the lower portion of the left tonsil, a culture from which sent to the Philadelphia Board of Health disclosed the presence of the Klebs-Loeffler bacillus.

Her throat was sprayed with fifteen-volume peroxide of hydrogen by means of an atomizer, the nozzle of which was placed during the spraying within a half-inch of the pseudomembrane. As much as possible of the surface of the pseudomembrane was removed by rubbing the membrane with cotton wrapped about the end of an Allen's probe and saturated with peroxide. Both tonsils and the lateral walls of the fauces were then carefully and thoroughly painted with a sixty-grain solution of nitrate of silver. This treatment was repeated thrice on the first day, twice on the second day, and once on the third day, when convalescence was fully established. However, in the meantime the patient's throat was sprayed with peroxide by the patient's friend every two hours in the manner described above.

CASE III.—Wife of a physician, seen within the past two weeks; sore throat since the day before; temperature 102°; marked depression; one of the cervical glands of the left side swollen during past twenty-four hours to the size of a pigeon's egg; fauces congested; crypts of both tonsils contained pseudomembrane; slough-like membrane on lower portion of each tonsil, that of the left extending to the anterior pillar. Local treatment similar to that of Case 2; convalescence on third day. No culture tests were made.

Because the Klebs-Loeffler bacillus is sometimes found in an apparently normal pharynx, and because the so-called walking cases of pseudomembranous rhinitis and pharyngitis are by no means rare in which cultures prove the presence of the Klebs-Loeffler bacillus, I am not prepared to maintain that either Case 2 or 3 was diphtheria in the clinical sense of the word, and that that disease was aborted by the use of the treatment described. As a matter of fact, painting the tonsils with silver nitrate has failed to abort tonsillar diphtheria in children in the few cases in which I have seen the disease early. The three cases have been quoted to show the value of applications of strong solution of silver nitrate (sixty grains to the ounce) to the lateral walls of the fauces. When painted upon this portion of the throat strong solutions of silver nitrate possess a sedative, an astringent, and an antiseptic action, the value of which cannot be overestimated.

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*POSTOPERATIVE PNEUMONIA COMPLICATED BY EMPYEMA, WITH REMARKS ON THE PROPER TREATMENT OF THIS CONDITION.**

BY PHILIP MARVEL, M.D.,
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The following questions are suggested by my experience with a case of this character:

1. What is the probable percentage of postoperative pneumonia?

2. Should evacuation, by aspiration or by drainage, be recommended before resolution is complete?

3. Does the absence of the characteristic physical signs in pneumonia argue in favor of the inadequacy of said signs to accurately indicate the degree of danger in the disease?

In answer to the first question I find the literature on the subject differing somewhat as to the percentage of cases in different countries, and also in different localities in our own country; but since this is true of many diseases, it indicates little more than the probable atmospheric and hygienic influences that obtain in the respective territories referred to.

Authorities are in the main agreed as to the chief causative factor in this as in other forms of pneumonia, viz., the active invasion of the lung by the micrococcus lanceolatus or dip-

* Read before the Atlantic City Academy of Medicine, Feb. 8, 1901.

lococcus of pneumonia of A. Fraenkel, which may or may not be associated with other cocci, as the staphylococcus and streptococcus pyogenes, etc., but are widely at variance as to the most constant exciting cause. After a careful review of a number of the probable contributing agencies in this form of pneumonia, among which may be stated undue exposure during or after operation, previously existing history of alcoholism, bronchial irritation from the anesthetic, age, race, and occupation, I am forced to the conclusion that though these are different in their bearing upon the individual, they are particularly uniform in the respect that they at least all tend to lower vital force and thus lessen the power of resistance, which lessened resistance of the patient, more than any specific effect of the anesthetic, is in my judgment the cause most favoring the development of the micrococcus, and absorption of the toxin.

Pneumonia after surgical operations was a common cause of death prior to the discovery of anesthesia, but to-day it is comparatively rare, so much so that there is truly a question as to whether or not anesthetics do not directly or indirectly lessen, in a slight degree, the liability to the disease.

Reference to Cheevier's papers of 1843 by Erichsen shows that in forty-one deaths after surgical injury, no less than twenty-three subjects presented signs of pneumonia. In contrast to this, modern surgery, as shown by Silk, presents only one case in 5000 operations. Prescott in analyzing the Boston cases estimates that in 40,000 cases of etherization there were only three instances of acute pneumonia.*

At the Presbyterian Hospital, New York, in the ten years from 1887 to 1897, there were 4914 administrations of ether followed by 17 pneumonias, 9 of which were fatal; 689 administrations of chloroform with 8 pneumonias, 7 fatal; 116 administrations of ether and chloroform with 2 pneumonias, both fatal.

It might seem from these figures that pneumonia after anesthesia is more often fatal than under other conditions, and also that the administration of chloroform is more likely to be followed by a fatal attack than when ether is used. E. C. Schultze, however, from whose report the above statistics are taken, does not believe that this large mortality following chloroform inhalation is due so much to the anesthetic chosen as to the fact that the great number of cases of malignant disease of the mouth, and of the respiratory tract, are among those to whom chloroform is given.*

J. M. Anders reports 12,842 etherizations with thirty cases of lobar pneumonia and thirteen deaths (6807 being gynecologic cases, with twenty-three pneumonias, or .33 of one per cent, as against .23 of one per cent for the entire number).† This difference gives rise to an interesting question, which however is not pertinent to the subject of this paper.

A glance at some of the foreign statistics would indicate that pneumonia seems to be more frequent in England and Germany than in this country. In the clinic at Erlangen during the period 1887 to 1894 there were thirty-eight ether narcoses with six pneumonias, of which four were fatal. During the same period there were 300 narcoses with chloroform with fourteen pneumonias, four being fatal.

The foregoing studies, collectively considered, warrant the following deduction, namely, that the difference of percentage given by various writers on postoperative pneumonia varies so widely that no percentage rate is as yet determinable, but that an estimate may be stated as ranging between .12 and .33 of one per cent, and the fatal cases between .01 and .09 of one per cent.

Were it not for the fact that empyema is an unusual complication before resolution has partially or completely taken place, there would be no need for discussing the second question, but since I can find but few references to the treatment of this condition, I take it as an evidence of its rarity, and thus the reason for considering it. I do not advise aspiration till the crisis has passed, unless the embarrassment to the breathing and circulation, or evidence of danger from the toxemia, should be such as to render relief imperative. Nature has already fairly fortified herself against invasion by the poison from the purulent fluid, and the danger from further absorption is unlikely to be greater than the disturbance brought about by the operation. If such a procedure as aspiration is followed by dangerous and even fatal results, in cases where the crisis is already past, may we not reasonably expect less favorable

*Vol. xvi, 20th Century, p. 84.

*Vol. xvi, 20th Century, p. 84.

† *University Magazine*, August, 1898.

results when the respiratory area is much lessened, and the circulation more embarrassed? I am not sure but that the sudden removal of the fluid under such existing circumstances, by relieving the intrathoracic pressure, favors more rapid pulmonic circulation, thereby changing the status of both the circulatory and nervous equilibrium, and thus rendering the absorption of pus toxin more easy and probable. Whether this be a correct explanation or not J. M. Anders sounds a note of warning against too early aspiration or surgical interference in these cases when he states: "I would add that in pleuropneumonia aspiration is not well borne, according to my observation; hence, unless urgently needed, I would postpone this procedure until the crisis has passed." If objection is to be raised against this means of removal of the fluid, certainly that of more active removal by drainage must necessarily be met with greater objections for the same reasons, though in accord with the teaching that pneumococci empyema should be operated upon at once, where resolution has taken place, until there is accumulative evidence to the contrary. I must add my approval of the cautious recommendation made by the author quoted.

Referring to the third question, there is perhaps no disease which has more distinct and characteristic signs than pneumonia, and it is but natural that we look for, and to some extent rely upon, these physical evidences in forming an estimate of the gravity of a particular case of consolidation, which condition may be taken as the one sign pointing more particularly to the severity of an attack.

Though the area of dulness and bronchial breathing necessarily is to be considered, and to some degree at least represents a measure of the peril to which a patient is exposed, we cannot always be quite prepared to outline and define the degree of the involvement. It undoubtedly happens to all of us, more frequently than is altogether comfortable, that an autopsy presents unexpected revelations as to the true conditions of the lungs, as against the changes supposed to have taken place. In many persons the respiratory sounds are quite feeble in health, even almost inaudible, except by forced inspiration. In such persons the initial crepitus may escape detection and the bronchial breathing be anything but well pronounced. Further embarrassment may be interposed by thick coverings of adipose and well developed muscular tissues. Hence, under the most favorable circumstances, and with the best trained ears, it must be admitted that our resources with auscultation and percussion fall lamentably short of supplying unquestionable data for an accurate appreciation of all that is taking place in a pneumonic lung, and our present means of satisfactorily interpreting the same must often bring us into an embarrassing and puzzling state of doubt and uncertainty, from which predicament we are but partially and too often humiliatingly relieved by nature's forces alone. Who of us is there who has not puzzled over varying and uncertain sounds? Do we always feel confidently equal to estimating the thickness of the pleura or the amount of fluid present through which the enfeebled respiratory sounds in these cases must be heard? Add to the difficulties already mentioned, the presence of pulmonary emphysema, infarction, abscess, or beginning tuberculosis, and it will readily be seen, valuable as the physical signs undoubtedly are, that they alone are quite insufficient for a full and accurate estimation of the changes taking place in a pneumonic lung. Though we may in many cases estimate the full area of consolidation present, we must still remain uncertain as to its import, for this area is necessarily less than the limit of that in which the toxin is being formed. This statement is corroborated by referring to the words of Andrew H. Smith, of New York, who says:

"So long as the disease is advancing in the lung there will always be a zone outside of the consolidated area in which the amount of exudation in the air cells will not be sufficient to cause notable signs, but in which nevertheless an active formation of toxin is progressing. The slightest film of fibrin upon the wall of the vesicle will harbor a colony of pneumococci, whose toxin will be under the very best possible conditions for absorption. Unlike the fully filled alveoli, these vesicles will have an active circulation going on in their functional capillaries, and the toxin as it is formed will be immediately taken into the circulation. The younger the organisms the more virulent is the poison formed by them, so that while cultures taken from the center of a consolidated area show little toxicity, those taken from the circumference of such a patch present the maximum of virulence."

After so concise an authoritative statement as the above, I have only to add that whilst the physical signs are most important in diag-

nosing the disease, I am fully convinced that they are not always proportionate to nor do they represent the measure of gravity in a case, and that too much stress cannot be laid upon the presence and behavior of the toxins and their influence in pneumonia.

CHLORETONE IN DUSTING POWDERS.

By E. Hollingsworth Siter, M.D.,

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The use of chloretone in dusting powders for painful granulation wounds has been wonderfully successful as far as analgesia is concerned. It does not seem to delay union or granulation, and it can be used in combination with almost any dusting powder. In the cases outlined below it was used with boric acid. It cannot be said, however, to hasten granulation, and, as far as I have observed, all it does is to mitigate or entirely allay pain in the majority of cases. This, after all, is a good deal gained for the patient and the physician.

I watched it carefully in the cases reported and admit that I was much surprised at its action. I attempted to use chloretone in solution as a local anesthetic, with extremely poor results; indeed, I was unable to obtain any anesthesia. In defense I should say that as the results were so discouraging in my first trials I have not tried the preparation often.

Chloretone, I think, has a great future, at least in minor surgery, as an analgesic dressing. I cannot see why it should not be as successful in major surgery when it may be prudent at all to use a dusting powder.

Some of the cases in which I have tried chloretone, and the results obtained, are as follows:

Case I.—L. D., aged eleven years, operated on for cervical adenitis. After operation wound became infected; it granulated slowly and was painful. January 14, chloretone powder was used. Patient returned January 16, complaining much less of pain; wound was granulating more rapidly. January 18, pain diminished and restoration seemed hastened. January 21, still improving and no pain. From this date healing was uneventful and painless.

Case II.—P. J. presented himself January 14 with a large granulating ulcer on dorsum of penis about the size of a quarter of a dollar, which was diagnosed as a chancroid. He complained of pain. Chloretone powder was used freely. January 16, patient claimed pain was much diminished; granulation was progressing. January 18, there was no pain, and ulcer was healing rapidly. Progress thereafter was painless and rapid. There was no glandular involvement.

Case III.—C. N., aged three years, was presented with phimosis and adherent prepuce. January 14, was circumcised; chloretone powder was used as a dressing. January 16, penis was dressed. He had not complained of pain or soreness, and while being dressed he exhibited no tenderness. Recovery was devoid of pain and was rapid.

Case IV.—M. M. Infected wound of dorsum of foot; complained of distress from his shoe, which was cut out over his injury and did not seem to exert pressure. January 14, chloretone powder was used as a dressing after the wound was thoroughly cleaned. After this his pain disappeared, and granulation was quick and uneventful.

Case V.—R. Z. was circumcised for recurrent herfer. Chloretone powder was used; after the first stinging of the operation ceased, he felt no inconvenience whatever from the wound. Recovery in five days.

Case VI.—J. H. Granulating wound from severe wound of knee; extremely painful, particularly from any movement of the part. January 17, chloretone powder was used as a dressing. January 19, pain was much lessened, both while quiescent and on movement. January 21, pain practically gone. Recovery uneventful and painless.

Case VII.—D. G. Infected wound freely opened and cleaned out; chloretone powder used as a dressing. There was no pain from the incision one-half hour after dressing. January 21 (two days later), wound was dressed; there was no pus; wound was found filling in nicely, and there was scarcely any pain. January 23, no pus; granulation healthy and wound painless. January 25, condition unchanged from last dressing. Recovery uneventful and satisfactory.

Case VIII.—F. S. Abrasion of forearm as large as the palm of the hand. Rather painful granulation; healthy. January 23, chloretone powder as dressing. January 25, pain had almost disappeared; granulation improved. January 28, wound doing well; no pain. January 31, wound almost healed;

no pain. February 2, wound practically healed.

CASE IX.—M. K. Large varicose ulcer on anterior surface of leg; very painful; had been strapped. January 14, chloretone powder was dusted on granulating surface before straps were applied. January 16, patient returned and said pain was much lessened; powder and straps reapplied. January 18, pain relieved entirely; ulcer doing well. January 21, no pain; granulation rapid. February 4, during this interval patient had been dressed regularly and did not complain of discomfort. Ulcer has practically healed.

CASE X.—H. M. Suppurating bursitis of knee. Bursa was opened and thoroughly cleaned out on January 15, then dressed with chloretone powder. January 16, complained of some pain; wound again dressed with powder. January 18, pain much diminished and wound doing well. January 21, no pain, and granulation healthy. Recovery uneventful and painless.

CASE XI.—Lacerated wound of scalp; head shaved, wound thoroughly cleaned out, and chloretone powder applied. January 21 (two days later), patient had no discomfort and good union was taking place. January 23, wound in good condition; no discomfort. January 25, there was good union, and patient was discharged with collodion dressing.

CASE XII.—M. G. Ulcerating gumma of forearm; slough was removed, and wound granulated slowly; there was slight pain. January 21, wound granulating more rapidly and pain diminished. January 24, wound filling in nicely; pain disappeared. January 27, wound doing well, and straps applied over powder. January 31, ulcer healed. This treatment of course was in conjunction with mixed treatment.

CASE XIII.—E. C. Varicose ulcer over lower third of tibia; pain severe. January 14, chloretone powder and strap were used. January 16, pain still severe but slightly diminished; same dressing applied. January 18, ulcer decidedly sluggish; was stimulated with silver nitrate, chloretone powder, and straps. January 20, pain much lessened; granulation more healthy. January 23, pain almost disappeared; ulcer doing nicely. February 4, ulcer healed.

CASE XIV.—D. H. Chancroids at preputial orifice. Circumcised, and dressed with chloretone powder. January 23, has had no pain on line of incision and union has taken place. January 25, no pain and good union. January 27, no pain, and patient discharged. There was no infection and no glandular involvement.

CASE XV.—H. C. Circumcised for phimosis, under cocaine anesthesia. January 30, in spite of the usual edema of the foreskin, there was no pain after operation, and the patient had no discomfort. February 1, union by first intention; there has been no pain. February 14, patient discharged.

CASE XVI.—C. S. Suppurating bubo from chancroid; bubo opened and cleaned out; chloretone dressing. January 31, no pain; wound clean and progressing favorably. February 2, there had been no pain, and granulation was healthy. February 4, wound was painless, and filling in. Patient is still under treatment, but is having a rapid and painless recovery.

CASE XVII.—J. C. G. Tubercular syphilide over right scapula, and ulcerating gumma of left buttock. Patient complained of some pain about the lesion over the scapula. Chloretone powder was used. January 28, patient said pain was absent; lesions looked improved. January 29, no pain; lesion improved. January 31, condition improved. Patient is still under treatment, but his condition is very much better by the use of chloretone dressing and iodide.

CASE XVIII.—C. F. had a large sebaceous cyst of scalp which was removed; chloretone dressing was applied. January 30, there had been no pain at incision, and there was excellent union. February 1, no pain. Patient discharged with collodion dressing.

CASE XIX.—G. H. Bubo both sides from chancroids. January 30, glands removed from both sides; chloretone dressing. January 31, there was slight oozing from the incisions, but no pain. February 1, wounds perfectly clean; no pain, and good union expected. February 3, condition of wounds good; no pain. February 5, condition good, and an early recovery looked for.

CASE XX.—N. B. Lipoma of the back removed; chloretone dressing. January 29, there had been no pain; union was excellent. January 31, no distress; wound in good condition. February 2, wound had practically healed. February 5, patient discharged.

CASE XXI.—C. R. Ingrowing toe-nail removed; dressed with chloretone. January 30, patient had had very little pain, and wound looked well. February 1, patient had no pain, and granulation was well on. February 3, there was no pain, and wound was healing nicely. An early recovery is looked for.

CASE XXII.—H. B. Chancroid, extremely painful; some glandular involvement; chloretone was used. January 28, pain was diminished; buboes seemed to be abating. January 30, pain much less; glands reduced. February 2, pain absent; chancroids healing nicely, and buboes abated. February 5, patient still under treatment, but doing very well.

CASE XXIII.—F. P. Infected wound of thumb; opened and thoroughly cleaned out, then packed with gauze. Patient returned next day complaining of severe pain; packing was removed; wound thoroughly cleansed and dusted with chloretone powder. Sterile gauze and bandage applied; within fifteen minutes the pain had entirely disappeared. Recovery was painless and uneventful.

CASE XXIV.—H. C. presented himself with a large suppurating bubo which had opened spontaneously. There was a quantity of necrosed tissue round the opening. The opening was enlarged, the remaining infected glands removed, and the necrotic tissue trimmed off, leaving quite a large surface to granulate. The surface was dusted with chloretone powder and dressed with gauze. Patient experienced no pain, and the wound granulated nicely. Recovery was rapid.

CASE XXV.—W. H. spilled a quantity of pure carbolic acid on his left thigh, causing a severe burn of oblong shape and about five inches long by four wide. The surface granulated slowly, and was extremely painful. January 14, chloretone powder was used for the first time, the wound then being about three weeks old. The cessation of pain was almost instantaneous. The wound is now skinning over slowly and painlessly under chloretone.

CASE XXVI.—O. F. Amputation of index-finger, right hand, at metacarpophalangeal articulation, for crush. The wound was dressed after operation with chloretone powder. There was absolutely no pain or soreness along the line of incision in spite of the fact that there was some secondary hemorrhage. Convalescence was painless and fairly rapid.

CASE XXVII.—C. Y. Recurrent balanoposthitis with phimosis. Patient was circumcised under cocaine anesthesia and dressed with chloretone powder, with absolutely no pain or discomfort from the incision. Recovery in six days.

CASE XXVIII.—H. C. Razor cut of thigh, requiring eight sutures to close the wound, which was dressed with chloretone powder. Healing was painless and by first intention.

CASE XXIX.—E. S. Infected wound of forearm was opened, thoroughly cleaned out, and dressed with chloretone powder. There was practically no discomfort from the wound, which is now granulating nicely.

CASE XXX.—S. B. Badly lacerated scalp; six stitches were taken, and the wound was dressed with chloretone powder. There was no pain during convalescence, although the wound granulated slowly owing to the patient's habits.

CASE XXXI.—D. H. Phimosis and adherent prepuce. Patient was circumcised under cocaine anesthesia. Dressing of chloretone powder was used, and although in places the prepuce had to be dissected from the glans, leaving considerable granulating surface, there was no pain. Patient suffered no discomfort; and the wound healed promptly.

CASE XXXII.—C. F. presented himself with condylomata about the anus. Patient complained of severe pain, particularly on defecation. Chloretone powder was freely used. The patient experienced great relief after the application, and under specific treatment the lesions disappeared without further discomfort.

AS TO THAT IMPORTANT FUNCTION OF THE BLOOD IN HEALTH, ITS ALKALINE REACTION AND THE REDUCTION OF ITS ALKALINITY IN CERTAIN PATHOLOGICAL CONDITIONS.

BY R. WERNIGK, M.D.,
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I wish to state that I am not offering anything new to the profession; I intend to state facts established long ago, but which, according to my opinion, are not sufficiently recognized in their importance by the general practitioner. The deductions made by me from these facts are based on three well recognized chemical and physiological conditions, and if the reader keeps this in view, he will have no difficulty in following my statement.

First, it is an established chemical fact that all organic substances in the body oxidize best in alkaline media. Many organic substances will not oxidize at all at the body temperature, unless in the presence of a free alkali.

Secondly, normal perfectly oxidizing blood is always alkaline.

Thirdly, in a large number of diseases, to

be mentioned later on, the alkalinity of the blood is diminished more or less, and hence the oxidizing power of the blood, the cells, and the glandular structures, which derive their alkalinity from the blood, is also diminished. In these advanced days of blood-count, hemoglobin estimation, and the constant throwing on the market of various hemoferric preparations, one more lauded than the other, it seems to me that at least some attention should be paid to that important factor through whose agency the oxidizing power of the blood is vastly increased, and its red corpuscles enabled to unite more readily with oxygen, and thus are in a better condition to establish normal metabolism. Animal existence is due entirely to continuous oxidation, and in order that the oxidation be perfect, it is, as we have seen, absolutely necessary that the blood, and hence the body cells, should be normal, and if normal, they must be alkaline to the normal extent.

As far back as 1865, the great thinker Von Liebig, the father of our organic chemistry, stated that the presence of free alkali, sodium, and potassium in the blood played an important part in blood-making and in the functions of the blood, and that by virtue of its alkalinity the blood acquired the following characteristics:

1. The alkalinity of the blood enables it to dissolve into a clear liquid the oxides of iron and other metals.

2. Its alkalinity prevents the blood from oozing through the walls of the blood-vessels, in the form of serum or blood, and is the cause of the blood flowing smoothly through the finest capillaries.

3. Its alkalinity prevents various factors from coagulating the albumin of the blood, and in fact, when the alkali is present in a certain proportion, not even heat will coagulate the albumin of the blood.

4. Its alkalinity keeps the constituents of the blood in a fluid condition, and by it the power of absorption for gases of the blood serum is increased. The alkalinity of the normal blood is due to the presence of sodium phosphate (Na_2HPO_4), and sodium bicarbonate ($NaHCO_3$); also to the alkaline albuminates. The degree of alkalinity is estimated variously by different investigators as containing from 182 to 600 milligrammes per 100 cubic centimeters of blood. This leaves a wide margin, and simply shows that no perfect method for the estimation of the alkalinity of the blood has yet been formulated. There are various methods used in estimating the alkalinity of the blood, of which Löwy's is the simplest; but for all practical, especially bedside, tests, the reaction of the urine is a simple indicator, as a rule, of the degree of alkalinity of the blood. The acidity of the urine is reduced as the blood gets more alkaline, and *vice versa*. The blood is as a rule more alkaline, and the urine less acid, and even alkaline, some hours after a meal or after a cold bath.

A great elimination of uric acid, however, may render the urine very acid, temporarily, without diminishing the alkalinity of the blood.

It being an established fact that normal blood is always alkaline, let us now see in which pathological conditions its alkalinity is lessened.

Garrod, Roberts, Landois, and later Haig, called the attention of the profession to the lessened alkalinity in gout, chronic rheumatism, and lithemia, and ever since the administration of alkalies in the treatment of these diseases has been in vogue.

In scurvy the appetite and the custom demand vegetable acids, which are converted in the blood into alkaline carbonates and increase its alkalinity. The famous Blaud pill owes its reputation to the presence of carbonate of sodium and potassium, as pointed out long ago by Immermann.

Of late more accurate observations have been made, and looking over the works of Von Jaksch, Vierordt, Sahli, Musser, and especially Simon, I find mentioned a large number of pathological conditions in which the alkalinity of the blood is reduced.

1. In all anemias, pernicious and simple, and leukemia.

2. In most fevers, except those complicated by cyanosis and dyspnea.

3. In all cachexias.

4. In toxic conditions of the blood, as uremia, diabetes, nephritis, hepatic disease, carcinoma, and in poisoning with carbon monoxide and phosphorus.

5. In chronic rheumatism, lithemia, gout (not in acute articular rheumatism), and scurvy—in fact, in nearly all chronic conditions in which we have blood changes. Excessive exercise also diminishes it.

A neutral or much diminished alkalinity of the blood is said to have been observed in cholera, sunstroke, and apoplexy. The alkalinity of the blood is lower in women and children than in men, and increases directly after a cold bath and after meals.

In order to elucidate what I wish to say regarding the oxidation process going on in the blood, I will briefly review the change which takes place in the blood while it circulates in the body. The venous blood enters the right auricle, passes into the right ventricle, and from there enters the lungs through the pulmonary artery. In the lungs it comes in close contact with the inspired air, through the most delicate blood-vessels, which line the air vesicles, and takes the oxygen from the inspired air and gives up its carbonic acid gas, which is exhaled through the lungs. The reoxidized blood now enters the left heart, and escapes through the aorta to enter the general circulation. During the passage of the blood through the various tissues of the body, its oxygen is taken up by the body cells, and it receives from the cells in turn carbonic acid gas, which has been formed by the burning up of the food in the cells. Now the cells we know are the proper seats of the vital processes, and if perfect, there is complete normal oxidation and metabolism, and that, with few exceptions, means perfect health. If for some reason or other this process of perfect oxidation is interfered with, as it certainly will be if the alkalinity of the blood is lessened and the cells are not bathed in the normal blood, then we will have a pathological condition; we will have poorer oxidation of the blood in the cells, and sooner or later in consequence poorer health; and no matter how many ferruginous tonics you pour into the system, never will the lessened alkaline blood be able to utilize them as perfectly as does normal alkaline blood. In discussing metabolism in his excellent scientific article on "Pathology" (*Medical Record*, September, 1900), Professor Levin says: "The abnormality in the metabolism of the proteids may go further yet, and the proteids may be eliminated before they are split up into nitrogenous and non-nitrogenous parts. This takes place in fevers, carcinoma, phosphorus poisoning, acute yellow atrophy of the liver." In those conditions in which the proteids are eliminated in the form of albumoses (not a perfect oxidized end product) such an abnormality in the metabolism is certainly a sign of great depression in the functions of the cells, since albumoses contain the same potential energy as the proteids themselves; consequently, the cells of the body are in a state of inanition, *though the supply of food may be plentiful.*

Von Liebig also says: "The blood contains preeminently an incombustible alkali, but the lymph and chyle also possess alkaline reaction, and it seems to be certain that not alone does the alkali give certain characteristics to the blood, but that the formations and productions of the blood depend upon its presence."

Now I have enumerated the pathological conditions in which the alkalinity of the blood has been found diminished, and as it is known as a chemical fact that the presence of the free alkali in the blood vastly improves its oxidizing power, does it not seem rational and logical that the first thing to be done in these pathological conditions of diminished blood alkalinity is to try and restore the normal alkalinity of the blood, so as to increase its oxidizing power, and enable it to properly assimilate the various foods? The beneficial effect of the saline waters is mainly due to the alkalinity of the water, and in support of this statement I take the liberty to quote from Professor Hare's System of Therapeutics, vol. i, page 521, where, in the article on "Alkaline Waters," we find these words: "Absorbed into the blood carbonate of sodium in the water augments its alkalinity and thus promotes oxidation and tissue metabolism. Under its use the urine becomes alkaline; the quantity of urea is greatly increased, while that of uric acid is correspondingly diminished. The functions of the mucous membrane throughout the body are stimulated, and according to Flechsig these waters become anticatarrhal remedies of a high order. It has generally been supposed that the alkalies increase the oxidation of fats and sugars, and to this effect has been attributed the curative action of such waters as Marienbad and Carlsbad in diabetes."

In his General Physiology, page 478, Verworn says: "Physiological chemistry has shown a difference in the living and dead cells, showing that the living substance or cell experiences, in dying, pronounced chemical changes, for the reaction of the living substance is almost without exception alkaline or neutral, and with death it becomes acid; and certain proteids that are in solution in the living alkaline cell substance, as the myosin of the muscles, experience very remarkable changes in death, as they coagulate and pass into the solid state."

In physiological leucocytosis, occurring after a meal or after a cold bath and during pregnancy, there is also an increase of alkalinity in the blood, as stated by Löwy and Richter. Masoin was able to protect

his control animals against blood-destroying poisons by injecting alkalies, which he could not do by injecting other salts. Todor also increased the resisting power of his control animals against infection by rendering their blood more alkaline. Inhalation of oxygen would certainly be more efficacious in an increased than in a diminished alkaline blood. It is of little importance what alkalies are administered; in cases of urgency they may be given intravenously or hypodermically, and I believe the beneficial leucocytosis, which according to Professor Landerer occurs after intravenous injections of cinnamate of sodium in tuberculosis, is due to the increased alkalinity of the blood; and where Kissingen and Vichy waters have reduced obesity, it is evidently due to the fact that the increased alkalinity of the blood is better able to maintain a perfect metabolism and burn up the stored-up fat which has accumulated owing to a decreased alkalinity of the blood.

In an article by Dr. Strasser, assistant of Professor Winternitz, in the November number of the *Therapeutische Monatshefte*, he states that in infectious diseases we should increase the alkalinity of the blood so as to increase its leucocytosis.

In my own blood I can run the count up to 15,000 by taking alkali, while ordinarily it varies between 8000 and 10,000.

NOTES OF A CASE OF PEMPHIGUS, PARTICULARLY IN CONNECTION WITH THE LOCAL TREATMENT.

By Arthur Van Harlingen, M.D.,

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True pemphigus is a disease of such unusual occurrence that it is only by the collection of a number of cases published by various individual observers that any generalized conclusions regarding it may be attained. No one man is likely to have a sufficiently wide experience with the disease to authorize him to speak with authority from his own observations.

I need not apologize therefore for presenting a single case of pemphigus, and for presenting this case only from the standpoint of treatment. Observations from other quarters will, I hope, follow.

John H., five years of age, was admitted to the Children's Hospital on November 27, 1899, suffering from well marked pemphigus. The eruption had appeared four days previously in the form of small blebs, and was at first supposed to be varicella.

On admission the little patient was found to present an extensive eruption of blebs of various sizes profusely scattered over the face, neck, arms, and feet, the trunk being at this time free. The lesions about the feet were umbilicated and resembled at first glance the lesions of herpes iris. They rose directly from the healthy skin, however, and none of the other symptoms of herpes iris were presented. A few blebs were sanguinolent. The child suffered from fever, with much restlessness at night.

The feverish condition was not indicated at first by a rise in temperature, since this was nearly normal on his admission to the hospital, but his condition grew rapidly worse. Delirium supervened, the temperature rose rapidly until it reached 102.4° F., varying considerably, however, and on several occasions rising as high as 103.6° F. By the eleventh day of the eruption the temperature had fallen to about 101°, but on subsequent days it rose as high as 102°. The accompanying table will show the temperature variations. They do not seem to follow any rule, but vary from time to time without any obvious connection with the state of the eruption, excepting an occasional rise with a fresh outbreak of blebs.

TEMPERATURE RECORD.

J. H.

Date.	Day of disease.	M.	E.
November 27	5	99.4° F.	98.4° F.
" 28	6	98.4	99.4
" 29	7	98.4	98.4
" 30	8	100.2	102.4
December 1	9	103.6	103.6
" 2	10	102 4	103.2
" 3	11	100.8	101
" 4	12	100.2	101.2
" 5	13	102	102
" 6	14	102	102.2
" 7	15	100	100.4
" 8	16	100.6	99.6
" 9	17	99 8	99.8
" 10	18	99.2	101.2
" 11	19	101.2	102 4
" 12	20	101.2	102
" 13	21	100.4	101
" 14	22	99	99
" 15	23	99.4	100.8
" 16	24	100 2	102.4
" 17	25	100.8	99.2
" 18	26	99	100.4
" 19	27	100	99.4
" 20	28	100.4	100
" 21	29	100.8	99
" 22	30	99.4	100.2
" 23	31	99	100.4
" 24	32	99.4	100.4
" 25	33	100.8	100.2
" 26	34	99.2	99.8
" 27	35	100	101
" 28	36	99.4	99.2
" 29	37	98.8	99.8
" 30	38	98.6	98.6

The temperature after this never reached higher than 100°, excepting on a single occasion (101°), until January 27, when a slight relapse occurred. The disease practically came to an end by the thirty-eighth day.

On the twelfth day of the disease I instituted the following treatment:

The blebs upon the left arm, which were so numerous as to be almost coalescent, were opened widely, and pieces of lint saturated with a solution of bichloride 1:2000 were applied, being covered with paraffin paper. The lower limbs were dressed with an ointment of borated vaselin.

Within twenty-four hours the condition of the child appeared to be changed for the better. The temperature, which before the dressing was 102°, began to fall, until within a few days it stood at 99.2°. At the same time the lesions which had been dressed with the bichloride solution seemed to improve more rapidly than elsewhere, the blebs drying up and the skin beginning to assume a more healthy appearance.

Four days after the first application of the bichloride dressing the arm was well enough to apply an oxide of zinc paste, and the bichloride dressing was then applied to the other arm and to the lower limbs.

The internal treatment at this time comprised for a few days $\frac{1}{100}$ grain of strychnine daily, and later four grains of quinine daily. The delirium and weakness being marked, whiskey in the dose of f 3 j every second hour was administered at times. The patient was kept upon a milk diet.

I avoided the administration of arsenic, since this drug being regarded as a specific in pemphigus, any beneficial effects which might follow the employment of the local treatment could be attributed to the internal medicine.

During the earlier period of the treatment the child had marked brain symptoms. Delirium followed by stupor was almost continuous for some days, but with the improvement in the skin symptoms the stupor gave way to dulness, and gradually the intellectual faculties returned.

The last period of high temperature was connected with a slight fresh outbreak of the eruption—about the twenty-third day of the disease. The temperature fell to normal about the thirty-sixth day of the disease.

The condition of the skin improved steadily, and by the thirty-sixth day all eruption had disappeared. For two weeks no local treatment was employed, but after that time inunctions of olive oil containing one per cent salicylic acid were practiced daily for several weeks, after which the patient left the hospital.

About six months later he returned to the hospital with a slight relapse, the blebs being chiefly confined to the legs. Wet compresses of bichloride solution (1-to-4000) were applied for forty-eight hours, and followed by a zinc paste. Under this treatment the blebs rapidly disappeared.

The plan I have followed was suggested by the idea that the chief seat, and what might be called the laboratory, of the disease, or at least of the general symptoms accompanying it, lies in the blebs.

We do not know enough of the pathology of pemphigus to speak with any certainty regarding this matter, but there is good reason to suppose that in the blebs, when once fully developed, there goes on a formation of septic matter the absorption of which gives rise to the increase of temperature and other general symptoms observed. Consequently it seems the part of wisdom to abort when possible the development of the bullæ, and when this cannot be done to shorten the life of the developed bulla and to check its course as quickly as possible. This had been attempted in a partial manner by opening the blebs and touching their bases with nitrate of silver or nitrate of lead, but without the distinct idea of sterilizing them.

My plan is to open each bleb as widely as possible, and to lay it bare by removing its covering. A wet dressing of bichloride of mercury 1-to-2000 or 1-to-4000 is then applied and kept in apposition from twenty-four to forty-eight hours. The dressing is then removed and ichthyol, either pure or in a twenty- to fifty-per-cent aqueous solution, is applied. After a few days this is changed for a simple zinc oxide paste or ointment, or occasionally a europhen or iodoform ointment.

When the eruption is extensive, one limb or a fraction of the surface may be treated at a time. Thus the arm may be undergoing the bichloride treatment while the leg is dressed with ichthyol, and the face or body with oxide of zinc paste. If there is any danger of absorption over a large surface, which I somewhat doubt, the above procedure would tend to obviate this.

Other bullar eruptions and pseudopemphigus, which are much more common than the genuine disease, may be treated by this method, or at least on this principle, with decided advantage.

GASTRIC ULCER: ITS ETIOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS, WITH SPECIAL REFERENCE TO TREATMENT.

By D. D. Stewart, M.D.,
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For many years I have been particularly interested in this important subject. As long ago as 1890 I published in Hare's System of Practical Therapeutics certain facts which I believed to have an important bearing on its treatment, and since then in various journal articles I have recorded additional facts which increasing experience has brought to my attention. During the writing of the present article I prepared for Sajous's Annual a comparatively brief statement which in many respects expresses the views which are here enlarged upon, but the frequency with which this lesion is met with, the difficulties in diagnosis and treatment, have led me to believe that a more complete exposition of the subject will be of interest and value at this time.

In the consideration of peptic ulcer it is necessary to carefully define what we mean by this term before proceeding to a discussion of the treatment of the lesion itself.

Gastric ulcer is characterized by a solution of continuity of a limited portion of the stomach wall, the destruction incident to which involves one, or more commonly all, of the coats, resulting in an open sore of varying size. This, in the acute form, from its rapidity of development and progress toward the peritoneal coat, without extensive peripheral involvement, assumes an aspect as if made by a "punch" instrument, as was originally remarked by Rokitanski. In the chronic variety, the ulcerating process is of slower progress, and a considerably greater mucous and submucous area may be involved, with a shelving tendency toward the muscular and peritoneal coats, the whole assuming a somewhat funnel-like aspect. The chronic form, under favorable circumstances, tends toward cicatrization; the acute shows a less benign inclination. Deformities of the stomach, such as hour-glass contraction, should the ulcer occupy its body; pyloric obstruction, when the ulcer is near the pylorus, and ill symptoms resulting therefrom, are not uncommon as a result of the cicatrization of the chronic ulcer. In both classes a tendency to hemorrhage and perforation of the stomach wall exists.

The two chief forms of true peptic ulcer are those above mentioned—the simple *chronic*, and the less common *acute*. Duodenal ulcer is closely related in character and symptomatology to gastric ulcer. Erosions of the stomach, although strictly speaking minute ulcerations of the mucosa, wholly differ from ordinary peptic ulcer in symptomatology, character, and course. Carcinomatous ulcer in most instances is simply carcinoma engrafted upon what was primarily a simple benign ulcer. This form will receive mention in the section on differential diagnosis; I have encountered two typical instances of it. Gastric cancer may itself ulcerate. It is often difficult to state from the post-mortem appearances which is primary, the ulcer or the cancer. Single or multiple gastric ulcers, not presenting the usual appearances of peptic ulcer, may occur as a result of tubercular and syphilitic infection. The former is less unusual. It is almost invariably associated with pulmonary, intestinal or peritoneal tuberculosis. Neither tubercular nor syphilitic gastric ulcer is readily diagnosticated in life.

Frequency and Etiology.—Gastric ulcer occurs more frequently than is generally supposed. Statistics show that in approximately five per cent of deaths from all causes a cicatrix of an old ulcer, or an open ulcer, may be observed if carefully searched for. The ratio of cicatrix to open ulcer is about three to one. Gastric ulcer is more common in northern than in southern latitudes, and it is apparently less common in America than in England and Germany. In Greater Russia, and in the region of the Rhön Mountains and the Bavarian Alps, gastric ulcer is little seen. Exemption in these regions, in which the inhabitants are as a rule robust and live in the open air, is regarded as probably the result of the character of the food, which is largely vegetable, rich in salts of potash, especially potassium phosphate.

The etiology of most cases is involved in doubt, despite all attempts of investigators to illuminate the subject. No single factor is always concerned in its production, and the pathological basis is often as varied as it is obscure. Certain deductions may, however, be drawn from extended clinical observations and experimentations, which at least forcibly suggest the mode of origin of many cases. Among the conditions leading to ulcer, no one of which in itself may be considered efficient for its production, but a union of several of which probably forms the usual factor, are certain diseases of the blood and of the stomach; cardiovascular altera-

tions and infectious diseases. Age and sex undoubtedly furnish a predisposition; occupation and the social and financial conditions of the individual are of less importance. Experiments have demonstrated that ulcer may be produced by a variety of causes.

Experimentally, on animals, it seems to be demonstrated that true ulcer of the stomach, that which shows a spreading tendency and in healing gives rise to some scar formation, most often requires for its production, as was first pointed out by Ewald, a lack of the normal relation between the gastric secretion and the nutritive blood, either an increased acidity of the former and a deterioration of the latter, or the two combined, at the time of the creation of a local lesion. Otherwise measures which result in loss of tissue are but temporarily operative. Thus a small readily healing ulcer may be produced by conditions depressing the nutrition of circumscribed areas of the mucous membrane, such as by ligation of small vessels, the production of emboli, or of gastric hemorrhage through injury of sympathizing portions of the central nervous system. Nutritional changes occur in limited areas of the gastric mucosa and submucosa, rendering these, through diminished vitality, subject to autodigestion. So lesions of the mucous membrane, directly produced, whether by a chemical, mechanical, or thermal irritant, give rise to local circulatory changes, leading to the same. But ulceration so produced shows no great tendency to spread and commonly heals readily. If, however, as in the experiments of Quincke and Daettwyler, the animal is first rendered anemic by previous systematic venesection, then such injury to mucous membrane has little healing tendency and is apt to result in ulcer, showing the usual characteristics observed in man. So, too, the employment by Silbermann of substances causing destruction of the red blood-corpuscles is similarly followed by tardy healing, or by progressive increase of the limited ulceration produced by mechanical or thermal means.

In the experiments of Koch and Ewald deep ulcers occurred in the stomach of animals in the areas in which gastric hemorrhages had first been caused by section of the spinal cord, and in which there was introduced into the stomach, at the same time, 0.5 per cent of HCl. They had made use of the methods of Schiff, who discovered that injury to certain parts of the nervous system, such as the thalmi, or of the cerebral peduncles, would produce localized hemorrhagic infiltrations, erosions, and even ulcer of the stomach. Schiff regarded this as due to neuroparalytic hyperemia, originated by disturbance of the central gastric vasomotor nerve connection. Ulcer was similarly produced by Ebstein and Brown-Sequard, by destruction of the anterior corpora quadrigemina. As a consequence of such injuries it seems probable, as Ewald suggests, that, as might well occur, an excessive production of HCl resulted, augmenting into ulcer the local gastric lesion, the result of the injury to the connected central nervous system. It is not now held that the gastric juice can by itself produce ulcer. Autodigestion of the normal stomach is an impossibility. HCl is not secreted by that portion of the mucous membrane at which ulcer is most common (the pyloric end); but that the gastric juice must have some influence in the development of most cases of ulcer there is little doubt. As has been directed attention to by several observers, ulcer of the stomach and of the first part of the duodenum presents a great anatomical contrast to ulcers in other parts of the intestinal tract, and is of a character that can be explained but by the digestive action of the gastric secretion.

Riegel first pointed out that in by far the greater number of cases of gastric ulcer there is a tendency to superacidity of the gastric juice. Indeed, he considered such association to be invariable. His observations have since been measurably confirmed by a large number of investigators. Although Riegel's position, that this association is an invariable one, cannot be maintained, it may now be confidently asserted that in about seventy-five per cent of the cases of gastric ulcer hyperchlorhydria is present. This has been shown to be true when examinations are systematically made at a period in which the symptoms indicate that the malady is not of very long standing, before coincident gastritis has resulted in a condition tending to produce secretory diminution. This my own not small experience strongly supports. Although extremely probable, it has not been demonstrated that this hyperchlorhydria antedates the appearance of ulcer in this percentage, and is not in many cases the result of the irritant action of the ulcer. The indications, however, are against the latter, and that although the existing hyperchlorhydria may be maintained and aggravated by the presence of the ulcer, in the majority of instances in which it is observed it has probably preceded the ap-

pearance of ulcer, and has, as was first strongly urged by Riegel, a causal relation. Riegel held that by virtue of this superacidity, should an injury to the mucous membrane of the stomach or an erosion occur, both of which otherwise might readily heal, the irritating influence of the increased HCl secretion would prevent this, and lead to the appearance of ulcer. Later developments strongly support this opinion of Riegel, but do not confirm the opinion that these factors alone will often induce ulcer. If to his view it be added that with the hyperchlorhydria and localized lesion a deterioration previously exists in the state of the blood, whereby the general bodily tone and that of the mucous membrane of the stomach is diminished, a lesion which otherwise would heal with appropriate readiness now does not, the cell protoplasm resisting less readily. Thus the superficial lesion will proceed to a true ulcer through the digestive action of the gastric juice on the injured mucous membrane, the vitality of which has been much depressed.

Very rarely symptoms of gastric ulcer are encountered in cases in which there is actual suppression of the gastric secretion, the so-called *achylia gastrica*. In all probability these are either cases of nervous inhibition, in which the irritation of the presumed ulcer has had an effect contrary to that usually produced, or they are cases in which a gastritis preceding ulcer or engrafted upon a stomach the seat of ulcer results in atrophy of the gastric tubules, the ulcer not healing despite the removal of the irritating effects of the hydrochloric acid, because of the poor nutritional condition.

The lesion whence a true ulcer starts may be produced by cardiovascular alterations, or by a local irritant such as the ingestion of too hot food or drink, or of a coarse particle such as a fish-bone or portion of an oyster shell. Embolism, as in mitral stenosis; pigment emboli, as in malaria and in hemoglobinemia; a thrombus, through local disease of the gastric vessels causing occlusion of arterial twigs supplying an area in which, before collateral circulation is established, sufficient injury to the mucous membrane occurs for ulcer to result when hyperchlorhydria is present and lowered vitality exists; local disease of the blood-vessels, or any condition tending to diminish vital functions of small areas of the gastric mucosa, with other circumstances favoring, as the occurrence of these in a chlorotic in whom hyperchlorhydria exists, may tend to originate a certain number of cases of gastric ulcer.

Virchow suggested the view that embolism or thrombosis due to local arterial disease is the common cause of ulcer, recalling that the funnel shape of an ulcer is similar to that of an embolic infarction occurring in a terminal artery of the kidney or lungs. But this view has not been regarded as quite satisfactory, since it was pointed out by Cohnheim that the gastric afferent vessels have commonly frequent anastomoses, and are, therefore, not terminal vessels. It is also known that disease of the vessel wall is not usual at the age at which gastric ulcer is frequent. Moreover, other conditions which would originate thrombosis or embolism, such as the acute infectious diseases, do not often lead to gastric ulcer. It is likely that cases of acute gastric and duodenal ulcer sometimes occur as the result of septic emboli finding lodgment in the capillaries of the gastric mucous membrane. Duodenal ulcer, the result of extensive skin burns, is presumed to so arise from acute bacterial embolic infection. Gastric and duodenal ulcer occurring in the course of pyemia are thus caused.

It has been suggested by Hemmeter that a persistent hyperchlorhydria may tend to produce instead of the normal clonic contractions of the gastric muscularis an intense local tonic spasm, which, long continued, originates ischemia with impediment to the onward flow of the venous blood. These local spasms, he points out, are readily followed by circulatory disturbances, with nutritional changes in the mucous membrane, and perhaps eventually in circumscribed hemorrhages, out of which the autodigestive process may form erosions and ulcers.

In a minor percentage of cases it seems unquestionable that hyperchlorhydria has not existed at the time of development of ulcer. In these probably a local injury to the mucous membrane, however produced, is prevented from healing by the irritant action of even a normal or slightly subnormal secretion of gastric juice, in the presence of lowered vitality of the tissues. A lesion originating ulcer may result from ingestion of a destructive irritant, such as a mineral acid or a caustic alkali. It may be due to local pressure, as from a tumor or an aneurism setting up a necrosis of the part involved.

That gastric ulcer may infrequently arise as a result of an infectious disease, as in

typhoid fever, and follow diseases in which pus formation occurs, such as dysentery, puerperal fever, suppurative peritonitis, etc., is known. Bacterial infection here probably plays an active part. Another form of bacterial infection, termed by Martin bacterial necrosis, is suggested as the likely cause of origin of a certain small number of cases not occurring as a result of a previous zymotic disease. Martin especially refers to this form, and views it as worthy of careful study; indeed, he regards it as probable that in not a few cases of gastric ulcer the primary necrosis may be of this sort, uninflammatory, due to the invasion of microorganisms into the lower depths of the mucous membrane, the subsequent ulceration being aided by the action of the gastric juice. Bacterial necrosis, which might originate ulcer, has been more commonly found in animals than in man, although it is said to exist also in man. It may be caused by different forms of cocci, both streptococci and staphylococci, and by various forms of bacilli. In a number of gastric ulcers studied by Hemmeter, bacteria were found throughout the layers of the ulcer. Hemmeter suggests it is conceivable that these microorganisms pave the way for autodigestion by causing necrosis of the tissues in which they are embedded. As yet no evidence exists to indicate that the relation of bacteria to ulcer is more than secondary or accidental, however microorganisms may be present in the walls of the ulcer.

Age, Sex, and Occupation as Factors in the Production of Gastric Ulcer.—Gastric ulcer is only rarely observed in children. One-half the cases occur between twenty and thirty, and four-fifths between twenty and forty. Its incidence decreases after forty, and beyond the sixtieth year its occurrence is rare. Gastric ulcer is more frequent in women, the proportion to men being approximately two to one. It is believed that certain circumstances favor this, such as a more frequent occurrence in women of causes which predispose to ulcer, such as chlorosis, anemia, a neurotic temperament, and, it is asserted, gastroptosis. Loose kidney, which is of much more frequent occurrence in women than in men, may in the writer's opinion act as a predisposing cause.

Occupation can furnish little predisposition other than an indirect one. In housemaids, and not in cooks, in the writer's experience, ulcer is comparatively frequent, and especially in the poorly acclimated Irish, in whom there has previously existed chlorosis and amenorrhea, and whose habits as concern food and general unhygienic conditions are unfortunate. It is questionable if character of the food can be an etiological factor, other than very indirectly, leading to anemia and aggravating a hyperchlorhydria already existing. The ingestion of very hot food or drink, especially when the stomach is previously empty, or of mechanically irritating substances, such as a spicule of bone, oyster shell, or the like, with other conditions favorable, may lead directly to ulcer through injury to a limited portion of the mucous membrane.

Influence of Certain Ailments in the Production of Gastric Ulcer.—The effect of a persistent hyperchlorhydria has already been remarked, and that of chlorosis has also been touched upon. There is unquestionably an intimate relation between these ailments and the occurrence of gastric ulcer. It rarely happens that the subject of gastric ulcer, with the appearance of symptoms of the same, is not already chlorotic or chloroanemic. It may be said with certainty that the blood changes in gastric ulcer in the majority of cases are not merely secondary, as some hold, save as concerns the anemia following hemorrhage, or that found in the later stages in some cases. That anemia itself, of course, should occur in gastric ulcer by virtue of inanition, and a result of frequent blood loss, is undoubted. Chlorosis itself cannot be explained by the occurrence of hemorrhage.

The frequency of the occurrence of gastric ulcer in hysteria is remarked by some clinicians. Hysteria can be said to predispose, through its influence, or through the influences producing it, on the general health. Associated gastric secretory abnormalities are somewhat usual in hysterical subjects, such as hyperchlorhydria or hypersecretions. The engrafting of the hysterical state upon the subject of gastric ulcer is not uncommon —the condition succeeding the appearance of ulcer. Gastroptosis is mentioned by some writers as a predisposing cause. Nephroptosis, of very frequent occurrence in women, and in the writer's experience common in the subject of gastric ulcer, seems to him a more likely causative factor than gastroptosis. In a large percentage of cases of nephroptosis, as in gastroptosis, the kidney (usually the right) furnishes no direct or indirect indication of its mobility and displacement, but in a moderate number pronounced reflex symptoms do occur and are chiefly referable to

the stomach. In an able paper on the "Diagnosis and Treatment of Nephroptosis" (*American Journal of the Medical Sciences*, March and April, 1893), Edebohls called attention to the nerve connection between the right kidney and the stomach, as explanatory of several of the more common reflex symptoms occurring in this condition. This same connection may readily explain why it is that in the neurotic woman, whose susceptibility to reflex disturbances in the direction of eye-strain, through a slight ocular unbalance, to symptoms produced by a uterine displacement which in the mentally robust would be wholly symptomless, an active condition of gastric hyperesthesia or of secretory or motor unrest might be initiated by a displaced right kidney. Nervous abnormalities in secretion, chiefly in the direction of heightened function, I have found, in a number of years' careful attention to the matter, more common in women the subjects of loose right kidney than in similar neurotics without such displacement. These women are frequently chlorotic or chloroanemic by virtue both of their temperament and habits of life, the last as concerns bad eating and lack of exercise, often engendered by the gastric neurosis. Such seem especially liable to gastric ulcer.

The common situation of ulcer, near the pylorus, and posterior wall toward the lesser curvature, a situation at which there exists no oxyntic secreting gland cells, is regarded by some as a point against the influence of the gastric juice in its production. If it is, however, recalled that during recumbency and sleep the gastric secretory function is apt to be most active, if food is present in the stomach, and the motor function least so, and that in cases of hyperchlorhydria, even when the stomach is empty, indications of undue secretory activity are often prominent, it is easy to conceive how this portion of the stomach, regarded as that in which pathological alterations in the mucous membrane, are most common, may become the seat of ulcer, if the habitual decubitus during sleep is toward the right, in a case in which the stomach contains an excess of HCl during sleep, and in which the adjacent portion of the mucous membrane has been subject to injury. This is the common position assumed by those in whom loose right kidney causing symptoms exists, and is that usual in most people when at rest in recumbency.

Occasionally duodenal, and less frequently both gastric and duodenal, ulcer occurs as a result of an extensive skin burn, and then during the second or inflammatory (sloughing of the involved skin) stage of the latter. Its occurrence here is in all likelihood due to the wafting of septic emboli from the sloughing skin to the capillaries of the mucous membrane of the stomach. Its production is probably aided by the action of the gastric juice digesting the circumscribed area of tissue involved in the septic embolic process. The occurrence of duodenal and gastric ulcer from burns is thus akin to similar ulceration in the course of pyemia as a result of septic emboli being carried into the circulation. They are truly of bacterial origin, as before remarked.

Gastric ulcer as a result of valvular heart disease (embolism), and from local disease of the arteries, has been already mentioned.

The ulcer may be single or multiple. Commonly but one chronic ulcer exists. The situation is most frequently in the pyloric region (in more than seventy-five per cent), and on the lesser curvature or the posterior wall. In Ewald's experience—the number of necropsies upon which it is based is not given—the site is usually at the pylorus and the greater curvature "corresponding to the most dependent portion of the stomach at which the gastric juice collects in the erect posture." Nolte, quoted by Ewald, gives the seat of frequency as the greater curvature, 22; pylorus, 3; posterior wall, 2; anterior wall, 3; cardia, 1. But Welch's analysis of nearly 800 cases shows very marked deviation from this; in these the lesser curvature was the seat in 36.3 per cent, the posterior wall in 29.6 per cent, the pylorus in 12 per cent, the anterior wall in 8.7 per cent, the cardia in 6.3 per cent, the fundus in 3.7 per cent, and the greater curvature in 3.4 per cent.

Although the size of the ulcer varies, its usual diameter is from one-half to one inch. It may be of a very much greater extent; one of approximately two inches in a long-standing case is not uncommon. The shape of the ulcer, although it frequently varies, is usually oval or round, with a funicular or crater-like form. When the ulcer is of some size, it often tends to assume a horseshoe appearance. An ulcer of this sort in a fatal case recently observed by the writer was of about six years' standing, and lay astride the lesser curvature near the cardia. The form of a chronic ulcer is usually obliquely funnel- or crater-like. The mucous membrane of the ulcer is destroyed over a larger area than is the submucosa; the latter is more des-

troyed than the muscularis, and the muscularis than the peritoneal layer. Thus the circumference of the would-be base of the cone is at the mucous surface and the truncated portion occupies the peritoneal coat or the surface of an adjacent organ such as the liver, pancreas, or spleen. In a case of the writer's in which there existed two large chronic ulcers, one astride the lesser curvature was adherent to the left lobe of the liver, the other astride the greater curvature, near the pylorus, was adherent to the pancreas. The edges of a long-standing ulcer are usually greatly indurated, not due alone to submucous fibrous increase, but to hyperplasia of the mucous membrane, the muscular and the peritoneal coat. The bottom of the ulcer is of irregular shape, of brownish or yellowish color, and may be smooth or rough, showing perhaps portions of slough on its surface. The muscular base is usually of quite wide extent. As is remarked by Martin "it appears resistant to the chronic ulcerative process, and the thickened circular muscles are more resistant than the thin longitudinal (the oblique not often being recognizable). At the edge of the exposed muscle is the thickened submucous coat with the mucous membrane frequently curved over it, but not undermined. Not infrequently the edge of the ulcerated musclar coat (circular) retracts beneath the thickened mucous and submucous coats, increasing the thickness of the edge, but leaving the ulcer with a smooth base and more vertical edges."

It seems certain that in a fair number of cases the ulcer, whether acute or chronic, arises from local disease of the blood-vessels, and the hemorrhagic infarction which results. But in many others in which no such primary vascular lesion can exist, or the vessel supplying the affected area have been the seat of injury through spasm of the gastric muscularis, we must assume, according to Ewald, that the ulcer develops from small follicular hemorrhages, or from hemorrhagic erosions, the seat of which is commonly the pyloric region, and the cause local injury or local stoppage of the circulation.

The gastric wall for a moderate distance around the ulcer, when the latter is of long standing, generally shows evidences of inflammatory change. There is often a limited gastritis with embryonic infiltration, and border cell changes, preservation of the chief cells, and glandular proliferation. There may be, and often is in long-standing cases, a tendency to a diffuse gastritis, characterized at first by proliferation of the glandular elements, and later by their diminution with a tendency to general glandular atrophy. In the vascular areas about the ulcer there is apt to exist a progressive endarteritis, involving arterioles, capillaries, and venous radicles. Thrombi usually exist in the lumen of the affected vessels. With involvement of the peritoneal coat in the ulcer cavity a localized or more general inflammation of this membrane exists. The peritoneal surface is apt to be much thickened, representing nature's effort to prevent perforation. In about fifty per cent of all cases adhesive inflammation occurs to some organ or part. When the ulcer is adjacent to one of the viscera — pancreas, liver, or spleen—in the course of time adhesions are formed. In the vast majority of cases, because of the situation of the ulcer and the relations of the stomach, the adhesions are between the pancreas or left lobe of the liver and the stomach. In an interesting case of the author's before referred to, in which there existed two large gastric ulcers, both of which had undergone carcinomatous degeneration, the one astride the lesser curvature near the cardia, the other astride the greater curvature near the pylorus, firm adhesions existed above to the left lobe of the liver, and below to the pancreas. Much less often adhesions occur to the spleen, the omentum, the colon, or the abdominal wall. In a case of long-standing ulcer the situation of which was the usual one, there were present dilatation of the stomach and a tumor mass in the pyloric region. Pyloric obstruction from cicatrization of ulcer, presumably adherent to the omentum, was diagnosed by the writer, and a section by Dr. T. S. K. Morton showed the correctness of this opinion. A large knuckle of much thickened omentum was united to the base of a partially healed, extensive ulcer, which ulcer in process of cicatrization had almost entirely closed the pyloric lumen.

An ulcer commonly terminates by cicatrization. In a small percentage of cases, instead, perforation occurs, or death takes place from uncontrollable hemorrhage, due to rupture of a large vessel. If the ulcer is of any size and depth, scar formation occurs as a result of cicatrization, succeeded by subsequent contraction of the newly organized tissue and its consequent deformity. There may be a stellate puckering of a more or less limited area surrounding a smooth depressed cicatrix, or, in a smaller ulcer, a contraction of the mucosa and submucosa will

form into a small star-shaped scar. If the mucosa alone has been involved in the ulcerative process the scar resulting may be so slight as to escape notice on the post-mortem table. The center of the scar may be ultimately united by adherent inflammation to an adjacent organ or part. Deformity of the stomach often results as a consequence of cicatrization of the ulcer. In one case of the writer's a central, complete hour-glass contraction had occurred because of the extensive cicatricial contraction of a very large ulcer situated in the body of the stomach. Here the stomach was divided into two separate pouches. The impossibility of cleaning the stomach by lavage was thus explained. The patient died as a result of cancer of the head of the pancreas. Other deformities may occur totally interfering with the functions of the stomach, such as approximation of cardia and pylorus, with obstruction of the lumen of the latter, in cicatrization of a large ulcer of the superior curvature. Pyloric obstruction with subsequent extensive dilatation of the stomach is a very frequent consequence of cicatrization of chronic ulcer.

Perforation of the gastric wall by the ulcer occurs in about five per cent of all cases. In those in which no adhesions exist to some part or to one of the viscera, a local or general purulent peritonitis is apt to result in consequence. Ulcer occurring in the pyloric region or on the posterior wall, or on the lesser curvature posteriorly, is likely to have formed adhesions before perforation happens. Ulcer of the anterior wall (infrequent) most often perforates. Adhesions commonly have not formed because of the free movement of the anterior surface of the stomach against the abdominal wall. This form of perforation is apt to be rapidly fatal, either in a few hours from shock, or in a few days as a result of a purulent peritonitis following. Perforation of ulcer adherent to the liver is apt to result in abscess; a similar result, or merely a local inflammatory condition with formation of fistulæ, may occur from perforation when the ulcer is adherent to pancreas or gall-bladder. An abscess may result from perforation in any situation in which adherent inflammation has occurred, save in connection with a hollow viscus, such as the gall-bladder or colon or the small intestines.

Tubercular Ulcer of the Stomach.—This is a rare affection, not over thirty cases having been recorded. Several of these are not considered altogether authentic. It is not found save with tubercular lesions elsewhere, as in the lungs or in the intestines. But one instance was found by Eisenhardt in 567 cases of tuberculosis of the intestines. Dürck observed four cases in 900 autopsies in Munich. The rarity of the occurrence of tubercular affection in the stomach is believed to be due to the fact that, unlike what is the case in the intestine, few lymph glands exist in the gastric wall, and that the normal stomach does not favor bacterial growth. Orth demonstrated the usual immunity of the stomach; rabbits fed by him with tubercle bacilli developed intestinal tuberculosis seven times, and gastric tuberculosis but once. However, with impaired resistance on the part of the mucous membrane and diminished secretion of HCl, other factors favoring, such as impoverished blood and the presence in that fluid of the infecting principle, or the frequent ingestion of the same, tubercular ulcer may occasionally develop. Tubercular ulcer may be single or multiple, and has wall-like thickened margins with a granular base, not extending usually below the muscularis. In both margins and base of the ulcer tubercular nodules containing giant cells and abundance of the characteristic bacilli are usually found. The common situation of tubercular ulcer is the pyloric region. Infection may occur directly from the stomach, or as is assumed always to occur by Habershon, through the blood.

Syphilitic ulcer is also infrequent, more so indeed than the tubercular ulcer. Ulcer occurring in a syphilitic subject is usually of the ordinary peptic variety, and has no apparent direct relation to previous syphilis, save perhaps through a resulting specific local endarteritis. Gumma of the stomach is less rare than syphilitic ulcer, and probably most often through degeneration forms the basis for the latter. It must be said that with a local luetic endarteritis occurring in the stomach, the resulting thrombotic closure of arterial twigs could easily serve for the basis of ordinary peptic ulcer, such as happens in the non-syphilitic, so that gastric ulcer in a syphilitic, when resulting from venereal infection, occurs from either disintegration of a previous gumma or from a necrosis of the mucosa following specific endarteritis. It should be said that Neumann holds that syphilis is not an uncommon cause of gastric ulcer. He believes that, with other sources of origin, ulcer may develop from gastric erosions, which he thinks are frequent in syphilitics.

(*To be continued.*)

The Therapeutic Gazette

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Leading Articles.

SOME FACTS IN REGARD TO THE TREATMENT OF INFLUENZA.

There are very few diseases which in their early stages produce such mild symptoms, and which on the other hand are capable of being so rapidly fatal in their results, as influenza. There is probably no malady in which careful nursing and the avoidance of exposure will so certainly produce recovery in the ordinary individual as this disease; and conversely, there is no illness which if subjected to poor nursing associated with exposure is capable of producing more serious consequences. While the patient may feel generally wretched in the early stages of invasion, he often does not feel sufficiently ill to force him to his bed. His fever is often moderate, and strength at this period is not sufficiently decreased to impress upon his mind the necessity of its preservation by absolute rest. The result is that very frequently the patient keeps on his feet, as does a case of walking typhoid fever, until his vital energies are so sapped that he becomes not only bed-ridden but in desperate straits, and then it is that the physician is called upon with the expectation that he will give speedy relief. Unfortunately, in many of these cases, consolidation of the lung, feebleness of the heart muscle, or renal complications are important factors in the case which cannot be speedily dissipated, and which often resist all our efforts at betterment.

Undoubtedly much more can be done in the way of prophylaxis when a person is taken ill with influenza than can be accomplished by active medicinal interference, and the prospects of rapid recovery are always in direct proportion to the willingness of the patient to lie by for a few days when he is first taken ill. Ever since the great epidemic of influenza which swept over the country in 1889 and 1890 and thereabouts, physicians have constantly met with cases of cardiac disease which have dated their illness from the attack of grippe suffered at that time. Many of these patients previous to that epidemic were already sufferers from valvular affections of the heart, but were unconscious of the valvular defect until the influenzal poison so sapped the strength of their heart muscle that a rupture of compensation occurred. In other instances persons who had previous to that illness perfectly healthy hearts have now apparently perfect valves, but nevertheless suffer from evidence of heart feebleness, continuously or upon marked exertion. In these cases the influenzal poison seems to have expended its energy solely upon the heart muscle and produced a cardiac asthenia which it is often impossible to overcome. Many of these cases of cardiac asthenia depend upon the patient having disregarded his physician's advice and insisted upon getting out of bed before the heart muscle had time to recover from the disease. Every patient should be told when taken ill with influenza that the surest way to reach perfect recovery is to call upon all the vital functions of his body to the least possible extent during his illness, resting assured that the old motto of "Make haste slowly" holds true most emphatically in this disease. In many instances no other treatment than this advice is really needed, although in many of them it is advisable from the very beginning of the illness to administer some mild alkaline diuretic, which is perhaps best represented by the following prescription:

℞ Potassii citratis, ʒ ij;
Spiritus ætheris nitrosi, f ℥ j;
Aquæ dest., q. s. ad f ℥ iv. M.

S.: Dessertspoonful every four hours.

This prescription will maintain urinary flow, be slightly antipyretic in its influence, will perhaps aid in the destruction of the toxic materials, and certainly will aid in their elimination by the kidneys; and it cannot be doubted that free diuresis for the purpose of eliminating the impurities of the body is an important part of the treatment of all infectious diseases.

For the muscular and bone pains of influenza the application of a hot-water bag or hot brick to the part of the body which is in greatest suffering will often be efficacious, and is much better than the administration of coal-tar products, which are apt to help produce cyanosis and nervous depression, and which give the kidneys additional work in elimination. But if these symptoms are marked, acetanilid in what is well known as the migraine tablet, which contains two grains of acetanilid, half a grain of citrated caffeine, and one grain of monobromated camphor, may be administered several times a day; or in its place phenacetine and salol, as these preparations seem to depress the circulation less than some of the other coal-tar combinations.

If an irritable cough, unassociated with distinct bronchial or pulmonary trouble, annoys the patient, doses of codeine, say one-tenth to one-fifth of a grain, may be administered several times a day with advantage; and if headache is marked and of a congestive type, with cold in the head and frontal fulness, a hot mustard foot-bath repeated several times a day will often give relief, and is a much better method of treatment than the administration of drugs.

In some cases of influenza the heart seems to be considerably depressed by the action of the disease, and it is necessary to administer stimulants. But in the great majority of instances, if the patient will remain flat on his back in bed the use of stimulants is unnecessary, and if they can be avoided it is best not to administer them. If they are given, moderate doses of the alcoholic stimulants are probably best, particularly if whiskey or brandy is administered, in the form of hot lemonade, which, while acting as a stimulant to the circulatory system, will also increase the activity of the skin and kidneys in eliminating toxic materials. We do not think that the fever ought ever to be lowered by coal-tar products, but always by sponging with tepid water; or, if the temperature is very high, by the use of the so-called sponging or rubbing of the body with a small piece of ice, using active friction with the other hand, and keeping cold applied to the head so as to avoid cerebral congestion during the sponging. Where patients object to the use of cold water or ice, alcohol and water, half and half, may be employed, and in other instances a mixture of equal parts of warm vinegar, warm water, and alcohol may be used with advantage, in that sponging with this liquid not only cools the skin but opens the pores, washes off effete materials, soothes the peripheral sensory nerves, and by so doing tends to produce sleep.

Another drug which is of value because of its influence in increasing secretion of the skin, and because it relieves pain in the muscles and bones, is Dover's powder. But this substance often seems to produce secondary depression in blond, sanguine persons, and because of the opium it contains is liable to increase constipation, which should not be encouraged in the presence of a condition where it is desirable to aid in elimination as much as possible.

THE DISAGREEABLE EFFECTS OF DRUGS.

From time to time we have called attention in the THERAPEUTIC GAZETTE to a fact which is very frequently ignored by physicians, namely, that drugs which possess power to do good are also qualified to do harm, if they are employed in a case in which their action is unsuitable. This statement seems on its face so self-evident as to scarcely require attention, yet as a matter of fact almost every physician, if he will carefully analyze his reasons for prescribing certain remedies, will often find that the reasons that he can adduce are not particularly good, and not infrequently careful mental analysis of his prescriptions will reveal the fact that certain of the ingredients have no reason for their existence therein, and even possess the possibility of doing more harm than good.

Among the laity the belief that drugs possess wonderful healing powers is very widespread, and this is not unnatural when we consider, first, that the laity has no idea or conception of the pathological changes underlying disease processes, and cannot realize that in many phases of disease such distinct alterations take place in various organs that a perfect cure is absolutely impossible. The second reason for their profound belief in medicinal remedies depends

first upon the fact that the wish is the father to the thought, and it is pleasant to think that a specific remedy exists for a given malady; and secondly, because in certain functional disturbances, the manifestations of which to the untrained eye are as marked as are the manifestations of organic lesions, the use of medicines frequently produces extraordinary cures. Theoretically, these influences should not govern medical men; but practically we are convinced that they too frequently warp and distort their judgment, with the result already named. In some instances, certain conditions which may be present strongly indicate the administration of a given remedy; but careful examination of the patient will discover the fact that other states more strongly contraindicate its employment, so that while the drug may relieve one symptom or condition, it will distinctly emphasize or exaggerate others which are more evil in their nature. This means, as we have said, that all drugs which possess power for good also possess power for evil, and that the more powerful a remedy is for producing good results, the more carefully must it be employed lest it produce deleterious influences.

A number of years ago in the editorial pages of the GAZETTE we mentioned several important conditions in which the administration of such a comparatively harmless drug as quinine might produce evil results, and pointed out that epilepsy, cystitis, gastritis, meningitis, and personal idiosyncrasies all acted as contraindications to its employment, since its use in full doses is calculated to exaggerate the symptoms and lesions associated with the conditions we have just named. We have also from time to time pointed out that various drugs like quinine and iodide of potassium produce changes in the skin which will often mislead the physician into a diagnosis of some particular form of skin disease, when in reality the discontinuance of the drug in question will result in an entire cure; the eruption being due solely to the influence of the medicament.

Again, papers have appeared in the GAZETTE in which the value of digitalis has been recognized, and yet, on the other hand, the deleterious effects of this drug when given in too large doses or over too long a period of time have been noted; and the fact has been pointed out more than once that while strychnine is a very valuable stimulant to meet acute conditions of collapse or shock, its prolonged administration in cases of circulatory and general systemic depression often produces great irritability of the nervous centers, great rapidity of the pulse, and irregularity of the temperature.

Our attention has once more been called to this matter by a writer who contributes a paper to the *New York Medical Journal* of January 26, 1901, and who writes from Zamboanga in the Philippines, namely, Dr. P. F. Harvey, a major and surgeon in the United States Army. He points out first that physicians must use drugs cautiously and in small doses, and not be in too great a hurry to produce definite curative results, since time is a very important factor in producing a cure, and nature must be given sufficient opportunity to carry on the alterations in nutrition which are associated with the influence of the remedy. He quotes Hartzell as having pointed out that the prolonged administration of arsenic in the treatment of psoriasis might be an etiological factor in the development of epithelioma.

We have also called attention to certain investigations made by English physicians which reveal the fact that the full doses of arsenic sometimes given in chorea result in the production of neuritis with loss of sensation and motion; and Harvey speaks of a case in which a minute quantity of iodoform dusted over a wound produced a scarlatinal rash, general wretchedness, headache, sleeplessness, vomiting, and delirium. He also recalls the fact to our observation that during the course of typhoid fever the prolonged use of strychnine as a heart tonic is distinctly disadvantageous, producing a thready pulse and great irregularity of the heart.

THE PREVENTION OF WATER-BORNE ENTERIC FEVER AMONG SOLDIERS AND OTHER PERSONS.

Pretty much every one fully recognizes the fact that typhoid fever, like most of the other prevalent infectious maladies, is emphatically a preventable disease. Indeed, it has been well said by one authority that every case of typhoid fever which ends in death might be justly considered an instance of manslaughter due to carelessness; for without doubt, if all the bacilli escaping in the feces, urine, and other discharges of typhoid fever were promptly treated as soon as they left the patient's body, typhoid fever would practically cease to exist. While it is true that the typhoid germs sometimes find their way into the body in raw food, such as un-

cooked oysters, and upon vegetables which have not been cooked, but which have been fertilized with night-soil, it is also a fact that in the vast majority of cases the typhoid infection occurs through water which is taken by the patient after it has been infected by discharges of persons ill with this disease. Particularly is this the chief source of infection in the various great epidemics that occur from time to time, and without doubt the large mortality and morbidity in the British army during its South African campaign has been due to the infection of drinking-water. On the other hand, it is almost impossible in such campaigns to see to it that all discharges are properly disinfected, and to prevent careless soldiers from drinking freely of water which is polluted, chiefly because their thirst is sometimes very great, and also because it is impossible to impress upon soldiery the fact that by this means fatal infection may occur. Of course, it is a fact that boiling the water will kill the microorganisms, but many times this is impossible, and even when it is attempted, it is sometimes done so ineffectually that the bacilli are never sufficiently exposed to high heat to kill them.

The great object has been to find some substance which when added to water which was under suspicion would destroy any infecting microorganisms and yet would fail to produce any deleterious influence upon the more highly organized protoplasm of the intestinal canal of the individual. This difficulty has been so persistent and so great that no satisfactory means have as yet been devised for the attainment of disinfection of water except by boiling, unless it be by the employment of a filter which not only removes ordinary impurities but is germ-proof as well. Manifestly, the employment of germ-proof filters in armies in the field and even in private practice is in the greater number of cases absolutely impossible, because of the difficulty of transportation or the inability of the ignorant to keep the filters in such a condition that they will be of real value in purifying the liquid. It is therefore with very considerable interest that we have read a paper in the London *Lancet* of January 26, 1901, by Louis C. Parkes and Samuel Rideal, in which they have detailed experiments made by them to determine what substances could be added to drinking-water with the object of making it innocuous, should it contain typhoid or other infecting microorganisms. It goes without saying that the substances which are to be employed for this purpose must occupy a small space and be readily carried. The substance which they employed in their experiments consisted of sodium bisulphate, tartaric, citric, nitrohydrochloric, and sulphuric acid. In the cases of these various acids it was found that they were impracticable either because they had to be used in large proportions of the acid, or else that they failed to destroy the microorganisms unless they were in concentrated form. Another difficulty with these various acids is that they are not practical for armies in the field owing to their fluid character, as it would be impossible for a soldier to carry with him the liquid acids without danger of producing acid burns and other disagreeable sequences.

Acid sodium sulphate, which is not official either in the United States or the British Pharmacopœia, proved to be an active substance capable of disinfecting water and rendering it safe, and also capable of being put into such a form that it can be readily carried without in any way inconveniencing the soldier who has placed it in his kit. While it is true that sodium sulphate or "Glauber's Salts" possesses distinct purgative properties, it is also true in regard to acid sodium sulphate that the amount of sulphuric acid which is present counteracts any influence of the sodium salts in the way of producing purgation, so that there does not seem to be any danger of causing diarrhea by the use of this preparation. Further than this, these investigators point out that the minimum purgative dose of sodium sulphate is ¼ ounce, and it is found needful to add only 15½ grains of bisulphate of sodium to each pint of water in order to render the germs incapable of producing infection. As a man is not apt to drink more than seven pints of water a day, a sufficient quantity of the salt is not taken in twenty-four hours to produce purgative effects; and they adduce evidence to show that the bacillus of typhoid fever is killed by exposure for only five minutes to a solution of sodium bisulphate in the proportion of 1 drachm to 500 cubic centimeters—that is, 15 grains to the pint of infected water. It is, however, better that the exposure should continue for from ten to fifteen minutes, in order that full action may be insured.

Acid sodium phosphate and sodium sulphovinate were employed, but they did not approach acid sodium sulphate in their efficiency, and were discarded. Parkes and Rideal therefore recommend that sodium bisulphate be put up in compressed tablets

of five grains each, prepared in such a way that they dissolve quickly when added to water, and that they should in turn be placed in a small metallic box which will hold about a quarter of a pound of these, equivalent to 350 tablets. This will be enough to sterilize over one hundred pints of water at the rate of three per pint. A box of this character could very readily be carried by every soldier, and if three of the tablets were added to a pint of water fifteen minutes before it was drunk, they think that a large number might escape infection. As only in a few instances are drinking-waters so heavily loaded with typhoid bacilli as to make the disinfection of the fluid difficult, it is highly probable that only in very badly polluted waters which have been infected by concentrated urine containing millions of typhoid bacilli would acid sodium sulphate prove useless. As a general measure possessing some value, incapable of doing harm and capable of doing good, this suggestion seems to us to be at least worthy of trial.

Furthermore, it has been found that one of these tablets of acid sodium sulphate, if placed in the mouth in the absence of water, causes a free secretion of saliva and does much toward putting aside the thirst from which an individual may be suffering when he is unable to obtain water which is pure. These investigators claim that this use of acid sodium sulphate in the mouth has already been tried in South Africa, and has proved efficient, those who have used it claiming that it gave much relief in a parched condition of the mouth, and of the upper respiratory tracts, by promoting secretion.

Researches of this kind are certainly in the right direction, and we trust that these investigators may see their way clear to pushing their studies further, and thus give us results which will undoubtedly prove important.

WHICH PREPARATION OF ERGOT IS THE BEST TO EMPLOY?

Our attention is called to this matter by a note which we have recently seen in the London *Lancet*, in which the author expresses the opinion that it is much better to employ a substance which is commonly known as ergotine, but which is really a solid extract of ergot, in preference to the fluid extract of ergot, which in his experience has given him uncertain results, and which he thinks by reason of the process of its preparation cannot be expected to produce results of which ergotine or solid extract of ergot are capable. He gives no very good reason for this belief, and therefore we are not at liberty to criticize the statements which he makes, but we cannot help feeling that the difficulty does not lie so much in the question as to whether ergotine, the solid extract of ergot, or the fluid extract of ergot should be employed, as it lies in the necessity of employing a preparation of ergot which is prepared by proper methods from crude ergot which in turn has been physiologically tested before it is placed on the market. There is probably no substance used in dangerous cases which is more apt to vary in its physiological activity than ergot. It is not a pure vegetable drug in the sense that digitalis or aconite can be classed as such, but is derived, as is well known, from a fungous growth upon rye. The conditions for the development of this fungus are sometimes favorable and sometimes unfavorable, and if they are unfavorable, undoubtedly the ergot which is developed does not possess the peculiar influences of pure ergot upon unstriped muscular tissue throughout the entire body, more particularly that of the uterus, and upon the uterine centers in the spinal cord. As we have before pointed out in the editorial pages of the GAZETTE, physiological testing has revealed the fact that a large amount of ergot placed upon the market, while it may appear first-rate to the average inspector, is, when tested, absolutely or partially inert. While, in all probability, evil effects will not follow the administration of ergot of this character, still the drug will be unjustly accused of being of no value, when in reality it was the particular sample employed in a given case which did not deserve the physician's indorsement. If physiologically tested ergot is employed, and is employed properly in cases which really need its influence, we have yet to hear of an instance in which it has failed to produce the effect upon a human being which we would expect as the result of a physiological test.

THE TREATMENT OF CREOSOTE POISONING.

Creosote has become so largely employed as an internal medicament in the treatment of bronchitis, tuberculosis, and other conditions, that it is possible for cases of creo-

sote poisoning to readily occur. While on the one hand it is true that creosote is almost chemically identical with carbolic acid, it is also a fact that carbolic acid fails to give similar therapeutic results when it is given internally, and physicians of experience recognize the fact that creosote, which is obtained by the destructive distillation of beechwood, possesses the greatest therapeutic activity. It has been known for many years that carbolic acid, when taken in poisonous doses, should be neutralized, or rather rendered innocuous, by the administration of full doses of any one of the soluble sulphates, preferably of sulphate of magnesium or sulphate of sodium, which will not only form harmless sulphocarbolates, but in addition act, if given in excess, as purgatives, and so rid the alimentary canal of this compound.

A number of years ago, in order to determine whether soluble sulphates would act as efficiently as antidotes in creosote poisoning as in carbolic acid poisoning, the writer of this editorial carried out a series of experiments in which poisonous doses of creosote were given, followed by the soluble sulphates, and found that they seemed to be equally efficient as antidotes as in carbolic acid poisoning.

Our attention has once more been called to this matter by the report of a case by H. M. Hewlett, one of the physicians to the Melbourne Hospital for Sick Children, who records, in the *Intercolonial Medical Journal of Australasia*, a case of a child three and a half years old who swallowed two drachms of creosote, and rapidly became unconscious, developing many of the characteristic symptoms of carbolic acid poisoning. The stomach was washed out with about two pints of strong solution of the sulphate of magnesia, about six ounces being left in the viscus. Strychnine was given hypodermically, external heat was applied, and a rectal injection of Liebig's extract of beef and brandy was given. After a short time marked improvement took place, and the child progressed to convalescence, passing in the meantime very dark brownish urine, evidently the result of the elimination of the creosote by the kidneys.

SERUM INJECTION IN THE CURE OF CANCER.

It will be remembered that Wlaeff, of St. Petersburg, last summer stated that he had discovered a serum the injection of which would cure cancer. This serum he made from cultures of the blastomycetes or ferment extracts of cancerous tumors, and he employed it in a number of malignant cases inoperable because of the size of the tumor and the extent of glandular involvement. Of the two cases presented by him in illustration of the potency of his treatment, the first received six injections in the course of a month and showed some improvement. Operation was performed, but the cicatrix ulcerated. This ulceration healed under the influence of renewed injections, though the glandular engorgement did not disappear, requiring removal by the knife.

Another patient suffering from extensive epithelial involvement of the tongue was apparently markedly benefited by the injections and his pains greatly lessened.

Championnière saw one patient with epithelioma and enormous ganglion engorgement greatly improved by six months' treatment; also a woman suffering from cancer of the breast, who stated that following the injections she experienced greater comfort and more freedom of movement.

With a spirit worthy of emulation Berger and Reynier (*Journal des Praticiens*, No. 48, 1900) placed a number of patients suffering from inoperable cancer under Wlaeff's care, keeping these patients under careful and almost constant surveillance during the course of the treatment. They were not able to note a cure in a single case, though the patients always were greatly improved by the treatment, and they felt benefited by it. The tumor seemed to diminish somewhat in volume. A cancer of the rectum exhibited a lessened tendency toward hemorrhage, and several cancers of the tongue showed less salivation and edema. There was a decided diminution in the amount of pain. Several patients gained weight, and in others the progress of emaciation seemed to be ameliorated. Indeed, the malignant disease seemed to become for the time arrested, but this arrest was never followed by a cure, nor was there any reason to hope or suppose that a cure would ultimately result. The action of the injection seemed to be transitory, since when patients who had experienced any relief stopped treatment, the symptoms at once became more pronounced. Championnière points out that many other forms of treatment have been heralded as curative because of a similar arrest in the progress of disease. He notes that the administration of magnesia has, in his own experience, been

followed by this result, and believes that he has even seen a cure. Jaboulay holds that large doses of sulphate of quinine will produce this result.

GUNSHOT WOUNDS IN MODERN WARFARE.

The surgical records of the recent wars—on the Indian frontier, the Chinese-Japan war, the Spanish-American war, and the English-Boer war—furnish sufficient ground for a very fair estimate as to the mortality and crippling effects of the modern small arm.

It may be assumed in spite of much that has been written to the contrary that the missile almost universally employed was the modern jacketed bullet. This varies but slightly in caliber, and is propelled with practically the same force by all weapons used by civilized nations.

On the basis of experiments made upon cadavera it was assumed, before a practical trial of these weapons was made, that the percentage of killed to wounded should be much larger than was the case when missiles of larger caliber and lower velocity were employed.

The so-called explosive action of the modern small caliber bullet has been explained by the fact that in addition to its forward motion the bullet receives a certain rotary swing in the beginning of its flight, which swing disappears at mid-ranges but is reassumed as the ball loses velocity. An illustration of such a rotary swing is seen when a top is spun. This toy at first sways unsteadiiy, then, in the parlance of schoolboy days, it falls asleep, then sways again as its rotary motion becomes less rapid, until finally it falls on its side.

The cadavera experiments demonstrated an enormous shattering effect when wounds were inflicted at short or at long ranges, while at middle ranges—that is, from 600 to 1200 yards—the bullet exhibited a tendency to pass entirely through both hard and soft tissues, leaving a wound much like that which would be inflicted by a gimlet. These experiments have to an extent been corroborated in actual practice.

The shattering effect and the lethal effect of short-range wounds, particularly when the ball has struck bony tissue, or the head, or the liver, have been most marked. This same effect, however, has not been so distinctly observable in long-range wounds; nor has it been noted as often as theoretical considerations would lead us to expect.

The very large majority of wounds have been clean punctures. A not improbable explanation of this lies in the fact that the modern rapid-firing gun makes close-quarter engagements the exception rather than the rule.

Another surprising circumstance in relation to modern warfare is the number of bullets which have been found lodged in the tissues. Because of the high velocities of the missiles it was naturally supposed that nearly all wounds would be perforating; but since many are inflicted at extreme ranges, or by bullets that have ricochetted or that have passed through some substance before striking the body, the assumption that but few would find lodgment has been disproven. Thus, of 198 Mauser bullet wounds seen by Captain Borden in the Santiago campaign, there were twenty-one lodged bullets. He notes that many of these bullets were found in the tissues either deformed or turned end for end, almost conclusively proving that before inflicting the wound they had either passed through some dense substance or had glanced from it, losing the greater part of their velocity.

It has also been demonstrated that the course taken by the modern bullet is a straight one, even when its velocity is so low that its perforating power is lost. This peculiarity Borden attributes partly to the form of the missile, but mainly to its great sectional density. It thus differs markedly from the old leaden bullet of large caliber, with which deflections after entering the body were common. Slight displacements of the jacketed bullet from the line of its course are sometimes due to muscular action or to pressure of the neighboring organs after the bullet has come to rest.

It is gratifying to note that the percentage of deaths among the wounded is lower in the Spanish-American war than in any war of which we have a reliable medical history. In the American civil war there were 246,712 wounded; of these, 31,978 died, a mortality of 12.96 per cent. In the Franco-German war there were, among the Germans, 99,566 wounded, of whom 11,023 died, a mortality of 11.07 per cent. In the Spanish-American war, however, 1594 were wounded, of whom 106 died, a mortality of 6.64 per cent.

It is noteworthy in comparing the records

of the civil war with the Spanish-American war that the percentage of mortality for wounds of the head, of the face, and of the abdomen is about the same. It was greater in the recent war for wounds of the neck and spine; less than half as great for wounds of the chest; less than one-sixth as great for wounds of the back; and less than one-tenth as great for wounds of the extremities. Indeed, the number of deaths from wounds of the extremities was but ten in 191 cases, and three of these died very shortly after the receipt of their injuries, probably from hemorrhage.

In regard to treatment of wounds of the extremities in the two wars, less than one-half the proportionate number of operations were performed in the last war than in the civil war. The mortality of the cases subject to operation was about the same in the two wars, but it must be noted that in the Spanish-American war only extremely serious cases were subjected to operative procedure. In the cases treated conservatively the mortality of the recent war was reduced over twenty-two times.

Borden demonstrates that this decreased mortality can by no means be attributed to the different effect produced by the small-caliber bullet, since the Roentgen ray examinations have shown that in fractures the amount of bone comminution is generally as great with the new as with the old bullet. He believes that conservatism has been made possible mainly through the fact of the recognition of the general aseptic nature of bullet wounds, the maintenance of thorough asepticity by the use of occlusive dressings, and the treatment of septic wounds by antiseptic methods.

The value of the primary aseptic occluding dressing is universally recognized. It now seems to be well established that even though the bone be extensively comminuted, and joints be involved, provided the wound can be kept clean, conservative treatment affords an infinitely better chance of recovery and of the restoration of functional activity than any form of operative treatment. It also seems perfectly clear that when these extensively comminuted fractures become infected, removal of detached splinters, drainage, or excision, or even amputation, will still be required.

POSTOPERATIVE INSANITY.

It is a well recognized fact in surgery that after both major and minor operations in a small percentage of cases there develops a condition of mental confusion, often accompanied by restlessness, and sometimes by hallucinations or even by acute mania. This was observed as far back as the sixteenth century, and was ascribed by many of the older writers to the effects of alcoholism. The circumstance that these disturbances or perversions of cerebral activity are at times permanent makes an investigation as to their cause, their frequency, and their preventability a matter of prime importance.

The literature upon the subject is now sufficiently comprehensive to justify certain conclusions in regard to this subject. First, as to the frequency of postoperative insanity: Werth notes that it occurred in six of three hundred cases subjected to gynecological operation. Weiss records seven instances of postoperative delirium in 700 operations. Denis, as the result of a statistical study, based especially on gynecological practice, believes that postoperative psychoses occur in about 2.5 per cent of cases. Croom, of a thousand operations, notes four cases of mental disturbance.

If all cases of delirium, melancholia, and other mental disturbances following surgical intervention are to be classed as postoperative, doubtless a percentage considerably larger than is noted in the foregoing reports should be recorded. It is well known that heavy drinkers are extremely liable to an outbreak of delirium tremens subsequent either to an accidental wound or an operative procedure. Moreover, there are certain drugs which are especially prone to cause such disturbances, and among these may be named iodoform, which has so often caused cerebral disturbances that some surgeons have asserted that it is invariably the etiological factor in postoperative insanity that cannot otherwise be accounted for. The absorption of ptomaines or of septic material from infected wounds may occasion psychical disturbances quite independent of operation, while organic diseases of the kidneys, of the intestinal tract, or of the central nervous system, may first manifest themselves after operative procedure, and by acting upon the cerebrum may occasion perversions which have too often been attributed to the operation itself.

If these well known causes of loss of mental equilibrium be excluded, there remains a very small percentage of cases in which there will develop after operation a usually temporary loss of mental balance, which ca-

only be ascribed to the psychical shock of the operation.

It does not appear that the more formidable operations produce a greater tendency to such disturbances. They are particularly likely to follow operations upon the eye, and are doubtless due in part to the fear or apprehension of the patient preceding the operation, and possibly to the confinement in the dark which such operations necessarily entail. Also it is probable that the frequency of postoperative insanity after operations upon the eye is due to the fact that many of these patients are well advanced in years and are suffering from senile degenerative processes.

Engelhardt as the result of an exhaustive study of this subject concludes that postoperative psychoses develop most frequently in those predisposed by heredity, chronic intoxication, age, or anxiety and fright. The shock and exhaustion incident to operation can be regarded at most as the exciting causes in those with distinct predisposition. There are, however, exceptional cases which cannot be well accounted for.

As for the therapeutic indications, care in the use of iodoform, the skilful administration of anesthetics, attention to the condition of the alimentary tract and of the kidneys, and some attention to allaying the terror with which many patients look forward to anesthesia and operations, represent practically the only means at our disposal by which this postoperative complication may be avoided.

Reports on Therapeutic Progress

CAUSES AND CURE OF INSOMNIA.

Sawyer, the consulting physician to the Queen's Hospital, Birmingham, writes an article in the *British Medical Journal* of December 8, 1900, and tells us that in the treatment of insomnia one may find it necessary to exhibit some of the drugs which are known to us as hypnotics or soporifics, which are remedies that induce sleep. When you have to deal with a case of insomnia, do not assume that you must of necessity give a hypnotic drug. Dr. Sawyer's advice is rather to assume that you can cure a given case of insomnia by understanding its particular causation and by remedying the same, than by attacking the effect by dosing with some hypnotic. Give hypnotics only in exceptional cases; only administer such drugs when you cannot help it. Experience in practice will enable us to decide, with increasing precision, when such an exceptional case is before us. We must rely whenever we can upon an intelligent causal treatment of insomnia, and upon a judicious employment of some of the non-medicinal helpers of sleep which he proceeds to describe. As a rule the successful treatment of a case of sleeplessness follows from the discovery of its cause. In the severer forms of psychic insomnia we must often secure sleep at once by the action of some efficient hypnotic. Dr. Sawyer prefers opium or chloral. By the use alone of one of these drugs we can often quickly cure acute insomnia depending upon some sudden mental shock or strain. It will be found that a few nights of sound and sufficient sleep, artificially induced by the exhibition of a reliable hypnotic, will do more than anything else to restore to the brain the power of sleeping without further aid from drugs. Besides chloral hydrate, opium, morphine, and the other soporific derivatives of opium, the chief hypnotic drugs are sulphonal, trional, paraldehyde, amylene hydrate, and the bromides, to which may be added alcohol and affusion of the head with cold water. For details concerning the comparative methods and demerits of chloral hydrate, paraldehyde, amylene hydrate, sulphonal, and trional, he refers to the admirable writings of Professor Binz.

Sir Lauder Brunton insists upon a well recognized and valuable consideration, namely, that a combination of hypnotics is sometimes more successful than any of them singly. He recommends a combination "of small quantities, such as 5 or 10 minims, of solution of opium or morphine, with 5 grains of chloral and 10 to 30 of potassium bromide." These and other hypnotics may be variously combined to meet the indications of each particular case, according to the judgment of a skilful adviser.

As a warning, Dr. Sawyer speaks very plainly and seriously of the risks which attach to the administration of powerful hypnotic drugs. Many human lives are yearly lost as the consequence of the taking by sufferers from insomnia of overdoses of hypnotics. All drugs which produce sleep as a physiological effect, and the relief of insomnia as a therapeutic action, with the exception, perhaps, of the bromides, produce stupor rather than sleep in overdoses, which deepens into the sleep which knows no

waking when they are ingested or injected in larger doses still. So never allow a patient to dose himself with hypnotics. Keep the matter quite within one's own secure hands, within well recognized limits of safety. In the less acute and more chronic forms of psychic insomnia, where the sleeplessness or wakefulness usually depends upon prolonged worry or overwork, he employs chloral or other powerful dormitives sparingly. They should only be used as temporary remedies when it is necessary to secure at once a fair amount of sleep. A patient should never be allowed to swallow chloral or any other of the dangerous but valuable hypnotics whenever he feels so disposed, neither should he apportion their doses for himself; he can only safely take them under direct medical control and observation.

Another important point must not escape from view. It is this: an overworked man or woman must never be permitted to go on with his or her overwork and habitually secure sleep by chloral or any other hypnotic. In such a case we must relentlessly aim at preventing the sleeplessness by removing its cause, instead of pursuing the illogical and precarious course into which a patient would often persuade us of permitting that cause to continue, and of trusting to counteract or suppress one of its effects by medicine. Work which prevents due sleep is dangerous work. When a man cannot sleep because he works his brain too much, we must make as a condition of our help that he stop or greatly lessen his labor; especially should he abstain from mental work for some hours before going to bed. In many persons the cerebral hyperemia of severe mental toil does not fall down to the circulatory limits required for healthy sleep for several hours after cessation of such work. We must, however, be wisely suspicious as to accepting work as a cause of insomnia. Nature provides that disposition to rest shall follow work. It is mostly worry, not overwork, or it is work under wrong conditions, which brings unrest.

Whatever the cause of insomnia, a holiday, with complete change of scene and with distinct change of activities, will often do much to cure. So great is the curative influence of new surroundings and of new outlets for energy, in many cases of psychic insomnia, that we cannot do without drugs. Potassium bromide is by far the best hypnotic in well nourished patients and in the slighter cases generally. It is marvelously powerful in producing nervous calm; it is a direct and quite safe brain sedative. But it must be given properly, and in full doses; after getting into bed thirty to sixty grains dissolved in water should be the dose. Sometimes we may usefully combine with it some drug which will favor the contraction of the weakened cerebral blood-vessels. For this indication we may give tincture of ergot or tincture of digitalis, one or both. In many cases of chronic wakefulness arising from prolonged mental strain, the patient is distinctly anemic. The insomnia cannot be cured unless the anemia be cured. The pallor of the patient's face, the lightened tints of his visible mucous surfaces, and his soft and small pulse, declare the condition of his blood. Such a person mostly feels drowsy when he is up, and wakeful when he lies down. He needs hematinics, of which the best are iron and arsenic, singly or combined. His diet must be generous, containing plenty of fish, meat, and eggs. For such a patient alcohol is often the best hypnotic. The prescription of alcohol as a remedy in disease is often difficult and sometimes dangerous. To many people a nightcap of toddy is a superfluous, perhaps hurtful, luxury. It gives, however, perhaps better than anything else, rest and sleep to the worried brain of feeble persons whose blood is poor. If Sawyer is sure of anything in therapeutics, he is sure that alcohol is the best hypnotic in many cases of chronic psychic insomnia, when the patient is worried and weakly, sorrowful and anemic. We need not exaggerate our responsibility in the prescription of alcohol, but we should never forget it. Dr. Sawyer has been accustomed to insist that when we use alcohol, in the form of many of the fluids which contain it, in the treatment of insomnia, we should explain to our patient the reasons for the employment of the remedy, and that we should discontinue its use, as we discontinue the use of other drugs, when the conditions which called for its exhibition shall have disappeared.

There are many other matters to which we must give attention in the treatment of chronic psychic insomnia, if we would follow Dr. Sawyer's advice that we should only give hypnotics in exceptional cases, and only when we really cannot obtain a successful result without them. He then mentions the more important of such details.

Some of them we will find useful in some cases, in other cases useless. How best

combine them in any given case experience will teach us. First, whether he sleep well or ill, the patient ought from day to day to go to bed and to get up at fixed and regular times. Lying in bed in the morning is not a remedy for insomnia. Healthy sleep is a rhythmic act. The conditions for its periodic recurrence must be supplied. An afternoon nap for half an hour or so after a meal, with the feet kept warm before a fire, is helpful, and Sawyer has found in practice that it conduces to rather than hinders better sleeping in bed at night. Again, daily bodily exercise in the open air, but always short of great fatigue, must be enjoined. What is called carriage exercise is better than no outdoor change at all, but walking is a far better exercise, and cycling better still, and riding on horseback the best of all. A worn and worrying man, habitually wrapped up in an absorbing torture of self-consciousness, exaggerating his subjectivities, and sleeping badly, must come out of himself, and blot out his self-consciousness with the saving graces of objectivities, when he mounts a cycle or a horse's back. Gardening in the open air, not in conservatories or hothouses, affords good exercise, and it is very efficient in keeping up objective attention.

Dwellers in towns may find good objective employment of a kind counteractive of insomnia in various physical exercises and "drills," in fencing with foils, and in other similar recreations, all of which we must learn to understand in their several details, so that we may prescribe them intelligently to suit the particular needs and aptitudes of individual patients; many may at least copy Archbishop Whately, who remedied the strain of his logic by splitting his logs, and give their minds a refreshing and recreative objective bent, and their muscles healthy work, by cutting up firewood. As to sunshine, he welcomes the present therapeutic worship of the sun; free and long daily exposure to sunshine is a valuable adjuvant in the cure of insomnia. Again, many people have acquired more or less insomnia in the acquisition of the bad habit of thinking out their affairs upon getting into bed.

In such cases especially, and in the cure of insomnia generally, people who find it difficult to get off to sleep have been advised to count monotonously, one, two, three, up to a thousand or more, until they fall asleep; to picture some familiar scene, and keep the mind fixed upon it; to repeat the letters of the alphabet over and over again. The late Dr. Pereira gave some interesting illustrations of the well known fact that the repetition of monotonous impressions on the senses of hearing, seeing, or touch are provocative of sleep. One passage from his monumental work on remedies is quoted. Speaking of monotonous impressions in the therapeutics of insomnia, he wrote: "This is the principle of the 'method of procuring sound and refreshing slumber at will' recommended by the late Mr. Gardner, who called himself the hypnologist. His method was for a time kept secret, and was first made public by Dr. Binns. It is as follows: Let the patient turn on his right side, place his head comfortably on the pillow, so that it exactly occupies the angle a line drawn from the head to the shoulder would form, and then, slightly closing the lips, take rather a full inspiration, breathing as much as he possibly can through the nostrils. This, however, is not absolutely necessary, as some persons always breathe through their mouths during sleep, and rest as sound as those who do not. Having taken a full inspiration the lungs are then to be left to their own action—that is, the expiration is not retarded too much, but a very full inspiration must be taken. The attention must now be fixed upon the action in which the person is engaged. He must depict to himself that he sees the breath passing from his nostrils in a continuous stream, and the very instant he brings his mind to conceive this apart from all other ideas, he sleeps. 'The instant the mind is brought to the contemplation of a single sensation, that instant the sensorium abdicates the throne, and the hypnotic faculty steeps it in oblivion.'"

These various methods seem to be devices for changing the current of conscious cerebration. In his practice Dr. Sawyer has found the plan of taking deep inspirations commended. But for the most part these expedients succeed for a night or two, and they can scarcely be relied upon. These sundry practices may even keep up wakefulness; when the mind attends to them too closely, they may sustain the self-consciousness which keeps the brain from resting. To try hard to go to sleep is often the surest way to keep awake. We do many things best when we forget ourselves, and going to sleep is no exception to the rule. Again, to promote the sleep of a person in bed, you should make sure that the bedclothes which cover him are sufficient and not excessive. If the covering bedclothes be especially arranged

in quantity each night by thermometric guidance, so as to secure that the thickness of the upper clothes will give to the inmate of the bed a general feeling of comfort, and not of sleep-preventing discomfort from either local or general chilliness or local or general overheating, sleep will be powerfully promoted. And further, if these arrangements be made with the knowledge and approval of the patient, we may gain the valuable adjuvant of his self-confidence as to sleeping, and establish within a happy expectation likely to be realized. For our guidance he tells us that from observations he has made he has found that in a large bedroom in the middle of a large house, without a fire or other mode of heating, and with a window open, a Fahrenheit thermometer stood at 70° or upwards in very hot weather, and at 44° or less in very cold weather. At a temperature of 44° the upper bedclothing should be a sheet, three blankets, a light counterpane, and a light small blanket, not "turned over" at the top, and not "turned in" at the bottom; while at a temperature of 70° it should be a sheet only. Between these extremes the changes should be gradual. The extremes should be the ends of a series of gradations passing through about nine terms. With a little care we can make a thermometer register, marking the suitable clothing for a given external temperature of the bedroom in any particular case, and so may cure insomnia and prevent its recurrence.

In all cases the bedroom window should be open all night and all the year round, and arranged so that it may be so without draught; the head of a bed should be away from a wall; and the best bed on which to lie is a hair mattress, covered with a sheet and a blanket and supported upon a chain stretcher. In some cases a little food taken just at the time for sleeping is an efficient soporific. We often observe that the good effects of a little nourishment—a cup of cocoa, or a small piece of dry bread—taken upon getting into bed, or upon awakening after a slumber which is too short for a night's rest, are most happy. We may usefully remember that sleep may often be induced by the temporary application of cold to the head or to the general surface of the body. A person who has been lying awake will often fall asleep at once upon regaining his bed after getting out of bed and sousing his head, neck, and hands in cold water, or after following Charles Dickens's plan of standing at his bedside until he feels chilly, and thereupon shaking up and cooling his pillows and bedclothes, and then getting into bed.

In the toxic kinds of insomnia we must especially endeavor, as already suggested, to act upon the maxim, "*Cessante causa, cessat et effectus.*" We must stop or lessen the consumption of tobacco, alcohol, tea, etc., as the case may be. A discussion of the treatment of gouty insomnia, and of the sleeplessness arising in some chronic kidney diseases, would involve a consideration of the whole question of the therapeutics of the maladies upon which these forms of wakefulness depend. Senile insomnia is very obstinate. Perhaps in the bromides, with full doses of hops or henbane, we have the most efficient and least harmful medicinal means of relief; while the promotion of sleep may be accomplished by an intelligent combination of some of the non-medicinal measures to which reference has been made.

THE PREVENTION OF NAUSEA AND VOMITING DURING ANESTHESIA.

In the *New York Medical Journal* of December 15, 1900, HIRSCHMAN reminds us that one of the most annoying things in connection with the administration of chloroform and ether as general anesthetics is the almost invariable nausea and vomiting produced by their inhalation. The patient, if a person of extremely nervous temperament, is usually nauseated when the administration of the anesthetic is started; or, if he is a person of strong and robust build, during the stage of excitement. He may escape, however, until the operation is well under way, when, if allowed to come out of the anesthetic for any reason whatever, he invariably begins to gag and usually to vomit. In quite a number of cases there is no trouble until the patient is returned to his bed, and allowed to recover from the influence of the anesthetic, when repeated attempts to vomit sometimes undo the good work of the surgeon or gynecologist.

In hospitals, and particularly in those in which a great many surgical operations are performed, it is quite the usual thing, in making the evening rounds after a heavy day in the operating rooms, to hear from all sides a continual retching. Think how this increases the discomfort of the poor sufferer, how it sends up pulse and temperature from sheer exhaustion, and how wearing it is on the already weakened patient! Think, also, of the effect (particularly in wards) on con-

valescing patients and on those who have just passed through a similar ordeal! We all know how sensitive the majority of people are to the sight or sound of vomiting. Think of the feelings of the new patients who have come in for an operation on the morrow, and who must feel that a similar experience awaits them! These are things which we, as physicians, must consider, and if there is a way of alleviating them, the sooner we adopt it the better.

The new drug, chloretone, is a very valuable hypnotic, antiseptic, and analgetic. A one-per-cent aqueous solution is said to be equal to a two-per-cent solution of cocaine hydrochloride for local anesthesia. Chloretone has the advantage over cocaine of having antiseptic properties, and it has no bad systemic effects. As a hypnotic, it seems to act upon the central nervous system, and in doses of eight to twenty grains (a drachm if necessary) it has a most excellent effect; it is not a depressant to the circulatory and respiratory systems. Dr. Hirschman mentions these uses of the drug incidentally merely as a matter of general knowledge, born of actual experience while he was connected with the Harper Hospital and since. The subject of this paper, however, demands the discussion of the use of chloretone in connection with the prevention of the nausea and vomiting occurring during anesthesia.

The proposition which presented itself to the writer was this: If vomiting at the beginning of and during the anesthesia is reflex, and if the vomiting following is due partially to reflex action and largely to the swallowing of the supersecretion of mucus resulting from the action of the anesthetic on the mucous membranes, why should not a drug which is not a depressant, which is both a local anesthetic, with pronounced effect on mucous membranes, and a sedative to the central nervous system, be used before anesthesia to prevent the coincident gastric disturbances?

In accordance with this line of thought, while he was a member of the resident staff of the Harper Hospital, Hirschman began giving chloretone to patients before anesthetizing them. It was given in doses of ten grains to women and boys under sixteen years of age, and of fifteen grains to men, half an hour before the anesthetic was to be started. If the patient does not object to it, he prefers giving it dry on the tongue, and following the administration with an ounce or two of warm water. It may also be given in capsules; but the three-grain sugar-coated tablets now on the market are not so desirable in this connection, because of the number of tablets necessary to make the required dose, and because the sugar coating and compression delay absorption somewhat. When the time for administering the anesthetic comes around, the patient who has had chloretone is calm; nervousness is quieted, and he is in an ideal condition. If a female, she takes the anesthetic well, takes little of it, and goes under without a murmur, and one almost forgets that there ever was a stage of excitement.

It takes from seven to twelve minutes to completely anesthetize with chloroform, and up to fifteen and eighteen with ether. Patients who have had chloretone require less of the anesthetic, and are not so apt to come out of the anesthesia suddenly during the operation, if the administration of the anesthetic is lessened temporarily.

Hirschman personally has observed sixty cases in a space covering a little over three weeks. Half of the patients received chloretone, and the other half, for the purpose of comparing results, did not. The operations were of the same class, the operators were the same, and he personally gave the anesthetic in nearly all cases. The amount of anesthetic in the cases of patients receiving the chloretone was from one-third to one-half less than in those not receiving it, and in none of the thirty receiving the drug was stimulation required during the anesthesia. Out of the thirty receiving chloretone, none was nauseated while being anesthetized, and three, or ten per cent, were nauseated, and only one of these vomited more than twice, on coming out from under the influence of the anesthetic. Of the thirty less fortunate patients who did not receive chloretone, twenty-four, or eighty per cent, were nauseated and vomited, and nineteen of them were still unable to retain liquid food on the following day; in some of these the nausea and vomiting persisted at intervals for three or four days. The benefits of chloretone in this connection are self-evident. The difference of seventy per cent in its favor is the most powerful argument for it.

These thirty cases, taken in direct succession, were mostly gynecological; on account of their sex these individuals were naturally more prone to reflex nervous disturbances. It was in the hope of overcom-

ing this reflex irritability that he sought for a remedy, or, to speak more accurately, a prophylactic. In the cases under observation, chloroform was the anesthetic usually chosen and always preferred; ether was given only when chloroform, for some reason or other, was contraindicated, or the operation was unduly prolonged.

ORGANOTHERAPEUTICS IN MENTAL DISEASES.

EASTERBROOK closes an exhaustive paper on this subject in the *Scottish Medical and Surgical Journal* for December, 1900, in the following words:

Brown-Séquard's generalization that "all glands and tissues have an internal secretion; all injected subcutaneously have a tonic effect," undoubtedly requires modification. Dr. Easterbrook's investigations in the insane lead him to conclude that those animal extracts which consist mainly of simple proteids (albumen and globulin) and albuminoids merely have a dietetic value; but that those animal extracts which are rich in nucleins and nucleo-proteids produce, when given by the stomach in sufficiently large doses (as 60 grains daily of the dried extract and upwards), a temporary stimulation of cell-catabolism with a subsequent anabolic reaction, this being evidenced by the common increase of the water, total solids, urea, and phosphoric (and uric?) acid of the urine, by the general tendency to a subfebrile pyrexia, and perhaps most important of all by the initial loss in weight followed by a gain. This initial catabolic stimulation with its resultant anabolic reaction is in his opinion the explanation of the physical improvement or "tonic effect" which occurs in a fair proportion of cases (usually under fifty per cent), and which if pronounced may be accompanied by mental improvement and even by mental recovery. In this sense, therefore, these substances may be termed metabolic tonics, and it is probable that in the living body those organs (cellular) which are naturally rich in nucleins and nucleo-proteids produce, in virtue of the metabolism of these substances, similar distinct "tonic" effects upon the general cell-metabolism.

In the administration of animal extracts in disease generally Easterbrook thinks it of the utmost importance to recognize the fact that many of them (apparently those rich in nucleins and nucleo-proteids) may produce this tonic effect. It explains many of the discrepancies in the results obtained by various workers in the various fields of disease, and it should save one from the fallacy of attributing to various extracts specific effects in diseases in which, *a priori* on the "internal secretion" hypothesis, their use seems to be specially indicated, these effects being in reality the general tonic effect of a certain group of animal extracts. Apart from the general tonic effect upon cell-metabolism, it is extremely doubtful whether each organ possesses a specific internal secretion in the sense intended by Brown-Séquard. Some organs probably have such an "internal secretion"—for example, the active principle (sphygmogenin) of the suprarenals, which powerfully increases muscular contraction and apparently diminishes tissue oxidation. So also the thyroid extract stands far above all others, and when it is administered in large doses the anabolic reaction never sets in until after the cessation of the drug; whereas, in the case of all the other "metabolic" extracts which have been used by him, an anabolic rebound generally sets in during the continuance of the drug.

THE THERAPEUTIC ACTION OF HEROIN.

The *Boston Medical and Surgical Journal* of December 13, 1900, has in it an article on this topic by LAZARUS, whose clinical experience consists of thirty-eight cases treated in the hospital and fourteen in private practice, and comprises pulmonary tuberculosis, bronchitis, asthma, pneumonia, laryngitis, coryza, rhinitis, and intercostal neuralgia. Under the administration of heroin hydrochloride the relief of pain, cough, and dyspnea was obtained in from one to five days. Among the fifty-two cases heroin hydrochloride caused nausea and giddiness in only two after the administration of one-sixth grain; but this disappeared promptly after the dose was reduced to one-half grain. In one case it produced gastric disturbance similar to morphine when given on an empty stomach, but this was not observed when it was administered after meals. In three cases it caused constipation, which was relieved by the addition of one-eighth grain of calomel to each dose. It will be noted in the above cases that the after-effects observed in a few instances appeared only after large doses of one-sixth grain, and promptly vanished after the dose was reduced to one-half grain.

The very thorough investigations which Lazarus has made with heroin hydrochlorid-

in his practice enable him partially to state that he considers this drug a most valuable aid to the medical profession. Its range of application, while originally confined to the treatment of respiratory affections, has been much extended by later observations. In pulmonary affections accompanied with coughs he would rank it as a specific, while its analgesic qualities in neuralgia and its antispasmodic effect in asthma and whooping-cough have been so well established as to entitle it to a prominent place in the treatment of these affections.

TREATMENT OF INFLUENZA IN CHILDREN.

JACOBI contributes to the *Medical News* of December 15, 1900, his views in regard to this subject. He believes the indications for the treatment of influenza may be several—the high temperature, the great discomfort, the restlessness, and the rapidly increasing exhaustion. In the treatment of many fevers it is their causes that require consideration; in others, however, their relations to, and influence on, the body are the main considerations. When the condition of the latter is fair, and no danger is incurred on account of the fever, it should be left alone; when the rise of temperature, however, by itself is injurious, it should be interfered with. At all events the treatment of the symptom "fever" gives us no hope of shortening the disease in which it occurs, or of which it forms a part; on the other hand, it is a satisfaction to know that while we increase the comfort and diminish the immediate dangers, the natural healing process is not disturbed. In this way both the justification and the limitation of the so-called expectant treatment become evident. To allow a high temperature to deteriorate tissues and exhaust the heart or brain is as injudicious as is the custom of emphasizing the number of degrees of Fahrenheit as the only valuable part of a morbid process. To be satisfied with depressing temperature is a grave mistake, but to allow pneumonia to run its deleterious course of high temperatures unchecked, with their full influence on the rapidity of respiration and the action of the heart, and on the increase of waste, is equally injudicious.

In their injurious influence on nutrition protracted infectious fevers act, first, like direct losses or like starvation, and secondly, as immediate poisons. The younger the patient the greater is the danger from that source. That is why a high temperature without any or with a trifling remission should not be allowed to last, though its immediate effect may not appear very ominous. When a high temperature results in a convulsion we never hesitate to reduce it; here we admit there is a vital indication. Why, then, not reduce it while there is the danger of a possibility or probability of its occurrence? Add to these facts the disposition of the young to inanition, which is caused by two main factors. The first is their rapid metabolism; the second and principal one is the relative, almost universal, insufficiency of the young organisms.

Moreover, we should not forget that most of our antipyretics are at the same time nervines, analgesics, and diaphoretics, thus improving comfort and metabolism. They are surely indicated when bathing is not sufficiently efficient or when baths are contraindicated; in that case they may act as adjuvants, as combinations, and procure sleep and remissions. Jacobi adds that there are, however, contraindications to the use of medicinal antipyretics because of possible idiosyncrasies and of the debilitating effects which many of the antipyretic drugs are apt to exhibit; he merely says what all have experienced, and what everybody should remember, viz., that no degree of Fahrenheit and no Greek name of a morbid process are the subjects of our medication, but an individual patient. From these points of view our fever remedies should be judged.

In Dr. Jacobi's paper of 1890 he said that acetanilid ought to be preferred among the poor because of its low price, antipyrin mainly where great solubility was required for the purpose of its administration in rectal and subcutaneous injections, and that phenacetine was preferable to either when it could be given by the mouth, because of its less uncomfortable effect on the brain, the heart, and the skin.

This opinion he has to modify to a certain extent, not that he objects to what he said of phenacetine, but acetanilid should never have an opportunity to show what good qualities it may have in the rich or poor. It should not be used at all, under any circumstances, not even in the quack preparations which now and then disfigure the prescriptions of regular practitioners. Being a derivative of anilin, acetanilid is poisonous. Not only has it a sedative or rather paralyzing effect on the central nervous system, but it destroys the blood and causes anemia

by changing hematin into methemoglobin, though given sometimes in small doses. That is what gives rise to the cyanosis so often observed, more often than after the administration of any other of our modern analgesics and antifebriles. The poisonous effect is even noticed when the drug is used externally, mainly on the young. Examples of such cases were reported at the meeting of the Philadelphia Pediatric Society, April 11, 1899.

Antipyrin when employed during normal conditions increases the tension of the pulse and blood-pressure — therefore it is contra-indicated in hemoptysis—and produces perspiration. It works more on the general central nervous system than on the center of circulation, and that is why it acts — while being antipyretic — as a sedative and analgesic. But it should not be considered as a nervine, for its action appears to be ushered in through the mediation of the blood and blood-vessels. The body temperature begins to decrease within fifteen or twenty minutes after the first dose; to render its antipyretic effect more tangible and persistent, it should be followed by a second within two hours. This rule, however, does not hold good when the drug is given for its sedative or analgesic or for its slight anti-rheumatic effect. Its general effect is mostly good, but its undesirable effects are many. Otto Seifert quotes eighty authors of note who report disagreeable effects of antipyrin; they were observed in the gastrointestinal, nervous, and circulatory system, in the skin, and in the mucous membranes. Phenacetine is dismissed with ten. It resembles acetanilid, but is very much milder in its effects. The transformation into methemoglobin takes place after large doses of several grammes only. Half-gramme doses for antipyretic, gramme doses for analgesic, purposes are recommended. The doses to be given to infants and children should be from fifteen milligrammes to three centigrammes (gr. ¼–½).

Salipyrin, the salicylate of antipyrin, is employed by Finkler. While antipyrin causes perspiration, sometimes excessively so, he reports a case in which hyperidrosis was instantly cured by salipyrin. It should be given in twice the doses of antipyrin; it is usually better tolerated than the latter, particularly by neurotic or neuralgic patients, because of the relative absence of accidental effects.

Salophen is extolled by Drewes, of Hamburg, who prefers it to salicylic acid and to salicylate of sodium, mainly in the nervous form of influenza. Adults took from one to six grammes, children from three to five decigrammes. Finkler, who quotes him, adds: "I believe that most physicians have arrived at the point where they would not like to be without these preparations in influenza, but it should certainly not be forgotten that reports of this kind have quite frequently been used for advertising purposes."

There is something else that should not be forgotten, viz., that there is hardly a disease which has as great a tendency to cause exhaustion and numerous other nervous symptoms, from languor to heart failure, as influenza. If there be the slightest indication of such a danger, none of the above mentioned drugs should be given without the addition of a stimulant. That should, according to what he has before said, rarely be alcoholic. Caffeine preparations are vastly preferable, mainly the salicylate (or benzoate) of sodio-caffeine, which, being very soluble and readily absorbed, is most ideal in its effect. That is why in emergency cases of heart failure its subcutaneous administration may often become indispensable. The use of strychnine is so well understood and so general that Jacobi limits himself to merely mentioning it.

To what extent stimulants should be given in the average or in the grave cases depends on the general condition of the patient, and on his medical adviser's knowledge of his former health and his resisting power. It is probable that in most cases some daily doses of sulphate of sparteine, five centigrammes (gr. $\frac{1}{12}$) for a child of two years, will have a favorable effect. The caffeine preparation mentioned may be given in doses of from two to six decigrammes (grs. iij–x) daily. When it appears to act as an excitant on the brain, it should be replaced by camphor in daily doses of from one to four decigrammes. All these doses, however, should be much increased when strong stimulation is required, and in an emergency subcutaneous injections of the same drugs should be used, caffeine being soluble in two parts of water, and camphor in four parts of sweet almond oil.

One of the best stimulants, useful in the gravest of all cases which are attended with collapse and heart failure, is sadly overlooked among us, viz., Siberian musk. Jacobi knows of nothing better in the most urgent cases. A child of two years should take of

the ten-per-cent tincture five to ten minims every half-hour until half a dozen or a dozen doses have been taken. Musk, together with large, hot enemata, has led him over many a difficult pass, and he again offers this experience of his, which now extends over fifty years, as a contribution to our aid in dire distress, always, however, reminding us of the fact that all these measures are not exclusive to influenza but to all conditions of nerve exhaustion, no matter from what cause.

Finally, Jacobi alludes to a singular experience which was published ten years ago. He does not know that it has been repeated since. Goldschmidt reports as follows: "About New Year's, 1890, a lady suffering from influenza landed in Madeira and disseminated the disease in a short time. Two months previously there had been an epidemic of smallpox, and numerous vaccinations and revaccinations were performed. Now, it so happened that all those who were successfully vaccinated — 112 all told — remained free of influenza. Of ninety-eight who were vaccinated unsuccessfully, only fifteen took sick." The author concludes from this experience that successful vaccination is a preventive against influenza. But as yet there is not enough known to justify any such conclusion with anything like certainty. Still it suggests the possibility of a future serotherapy for influenza and its very serious consequences.

DIETETIC TREATMENT OF DIABETES.

N. S. Davis, Jr., in the *Journal of the American Medical Association* of December 8, 1900, reminds us that mental depression and excitement are extremely harmful for diabetics. Whenever possible, they should be freed from business care, family troubles, or a life of excitement. During the last few years of wide-spread financial embarrassment Dr. Davis has frequently been able to trace the effect of sorrow and anxiety in the increasing physical trouble of his diabetic patients. Sexual excess should also be avoided by them.

The skin should be kept active by baths and friction. The patient should be carefully protected by woolen or silken underwear from sudden temperature changes. Regular exercise, and if possible outdoor exercise, should be taken to insure deep breathing, good oxygenation of the blood, and vigorous metabolism.

The following menu will illustrate what should be prescribed while a strict diet is maintained. On "fast days" a limited amount of these same foods should be recommended.

Breakfast: Tea or coffee without sugar or cream, one egg and bacon, and two or three slices of nut-bread with butter (Chicago Sanitary Flour or similar substitute for wheat flour).

Dinner: Bouillon or broths; beef, mutton, or chicken, spinach, or asparagus, or wax beans; salad of lettuce or tomatoes, with cheese; black coffee without sugar.

Supper: Tea or coffee without sugar or cream; meat or fish, or mushrooms, a salad of tomatoes or lettuce, or chickory, etc.; two or three slices of nut bread.

At bedtime, or in the evening, an egg-lemonade made with saccharin can be given.

Use as much butter as possible on bread and oil salads; eat by preference fat meats.

When a strict diet must be maintained, the cook should endeavor to furnish as large a variety of dishes by skilful preparation from the limited number of articles as possible.

When patients keep a "fast day" it is best to prescribe only two meals a day, one at breakfast time and one about six in the evening. At noon, if it is desired, an egg lemonade made with saccharin can be taken. The amount of food eaten at the two meals should also be limited.

THE SURGEON AND THERAPEUTICS.

Under this caption the *Bulletin of the Cleveland General Hospital* speaks editorially. It tells us that not long since a brilliant young operating surgeon declared to the writer his total unbelief in the curative effects of medicines. He challenged us to point out one remedy that was certain and unfailing in its effects. To surgery and the progress of surgery he gave all the glory of the nineteenth century. Medicines were fads; therapeutic results, delusions; medical treatment, a hoax. He represents perhaps the most partisan school of the younger lot of surgeons who are rapidly becoming therapeutic nihilists. Illogically enough he did not deny the palliative effect of drugs or their convenience in affording a patient relief, but cure was only to be attained through surgical measures. The patient upon whom he had just finished a most brilliant operation succumbed three days later from ether pneumonia. Every one of the patients he had operated upon were made fit to bear the operation only through the therapeutic ef-

fects of anesthetics. The surgeon did not discover the anesthesia that removes surgery out of the brutal butchery of force, the knife, the kettle of boiling pitch, and the hot iron.

The reader may think this is an overdrawn picture of the nihilistic tendencies of the average operating surgeon, and we own it to be an aggravated case, but conversation and association with the younger men of the craft convinces us that the great majority of them are ignorant to an alarming degree of the necessary therapeutic knowledge and art which can alone make the surgeon great. A man must be a great physician in order to be a great surgeon. He may perform amputations and do laparotomies in a most destructive and rapid manner. He may even be able to diagnose with precision and certainty. He may be thoroughly acquainted with the surgical literature of all times. He may have written a book and acquired a wide reputation, and yet fall far short of being a good surgeon because he is not a good doctor.

We are already experiencing some reaction from the results of the *furore operandi*, especially in relation to utero-ovarian surgery. Perhaps a better example is the surgery of tuberculosis, especially of the juvenile type, which is characterized by arthritic and osseous affections. When Koch discovered the specific germ of tuberculosis and demonstrated that disease to be infectious beyond all question, it was then hoped and confidently believed by the surgeon that an early operation and a complete removal of the focus of infection from the invaded point or bone would certainly result in cure. We have been disappointed. The surgeon soon found that his ability to recognize the limitations of the disease and stop it at its boundaries, leaving intact the normal parts, was absolutely lacking. To-day not ten per cent of the cases of this class are operated upon that were ten or fifteen years ago. Dr. Ridlon, of Chicago, has recently stated that not one per cent of such cases are in need of a surgical operation. This taking of such a large percentage of the cases out of the surgeon's hands and placing them where they properly belong, under the care of the general practitioner, who has the ability to perform the duty of building up the weakened constitution of the tubercular patient, is a most noteworthy one.

Tubercular infection is perhaps the most wide-spread of any one of the grave infections. Under most circumstances it is the most benign. In fact, it is a little doubtful if, with an ordinarily hardened constitution, tuberculosis in most parts of the body does not always tend toward spontaneous recovery. The last ten years of accumulated experience of operations for the cure of bone and joint tuberculosis has forced the surgeon to look toward therapeutic resources in order to save the patient. The results have compelled him to abandon a treatment that has produced little else but failures and cripples, and seek to eradicate the disease through a well ordered course of medical and hygienic treatment. Of course, when the disease has advanced, has destroyed a joint, has honeycombed a bone, has invaded the peritoneum, has become mixed with other infections and produced large pockets of pus, or attacked organs that are beyond the reach of most therapeutic measures, or which are suffering from some continually irritative disturbance that will not permit of their healing, then the surgeon's knife alone can save. The need of the profession is more surgeons who are better doctors, and more doctors who are better surgeons.

TREATMENT FOR SCARLET FEVER.

Pediatrics for December, 1900, has in it an article by KEMP in which he gives the following directions:

Elimination of the toxins of scarlatinal nephritis should be increased by improving the renal secretion, and skin and bowel action.

Plenty of water (boiled), and cool, but not ice-cold, is one of our best diuretics and eliminatives. Alkaline mineral waters are also excellent. Dr. Holt finds water to which a small dose (2 or 3 grains) of an alkaline diuretic, such as citrate of potash, has been added to be of value.

The bowels should be kept freely open by saline cathartics, so as to secure one or two loose movements daily.

The skin should be kept in good condition by frequent sponging and warm baths.

Absolute rest in bed should be insisted upon. In fact, in general, the suggestion of Dr. Winters that bed treatment in scarlatina should be of six weeks' duration is excellent. We agree with him in so far that scarlatinal nephritis may occur in a mild case of the disease, and that exposure to cold or draughts of air during desquamation, or, in fact, anything that may cause interference with the

proper performance of the functions of the skin, may be an accessory factor in causing nephritis or an exacerbation of the same.

The diet should be milk or one of its derivatives—milk and lime-water, or milk and Vichy, peptonized milk, buttermilk, matzoon, kumiss, leben, whey junket, malted milk, a thin gruel mixed with milk, or barley-water and milk.

Most of the mild cases tend to spontaneous recovery under rest in bed, fluid diet, plenty of water, and the proper attention to the skin and bowels.

Some of the iron preparations, as tincture of the chloride, have often to be given on account of the marked anemia, and a little solid food (farinaceous) must be cautiously employed if there is great loss of weight.

If the disease tends to become subacute or chronic, change to a warmer climate may be necessary, and flannels should be worn next to the skin in such cases.

We believe that care exercised from the incipiency of scarlatina will lessen the chances of a scarlatinal nephritis, such as the absolute restriction to fluid diet (milk or derivatives), plenty of water, attention to the skin and bowels, and rest in bed, even in the mildest cases. The febrile albuminuria, or in fact any renal disturbance whatever, should receive treatment, as even such condition might become one of acute congestion of the kidneys; hence diaphoretic treatment, as hot baths, etc., should be employed and diuresis be produced. It seems to us that too little attention is given to these so-called "temporary and unimportant" conditions. The plea that the average busy practitioner has "no time" for examination of urine once a day in such cases has no more weight than that of a man who has no time to attend to the details of his business. The simple boiling test for albumin and urates and obtaining specific gravity requires little time, or it is easy to secure assistance in such work. The microscopical examination could be made every other day for the first two weeks. We believe in such precautions throughout the disease from its incipiency.

In severe cases with scanty urine, fever, and marked dropsy, Dr. Holt advises the hot pack or vapor bath, and even pilocarpine hypodermically, one-sixtieth of a grain to a child three or four years of age. To counteract the depressing effects of this drug stimulants should be given at the same time. There should be active counter-irritation over the kidneys by dry cups followed by poultices or mustard paste. Rochelle or Epsom salt he advises as best to secure two or three loose movements, or calomel, but depletion should not be carried too far.

In suppression with uremic symptoms, high temperature, delirium, pulse of high tension, etc., the author advises nitroglycerin ($\frac{1}{100}$ grain) every hour for three or four doses to a child of five years, or until an effect is produced.

Uremic convulsions at times can be averted by the use of morphine, but venesection is the most rapid and certain to give relief. Two to six ounces of blood from a child of five years may be taken, according to the general condition or urgency of the symptoms. The improvement, though often only temporary, gives time for the employment of catharsis, diuresis, and other measures. The venesection may be followed by an infusion of normal saline solution at 120° F. (one drachm of salt to water one pint). The amount introduced would be nearly twice that of the blood taken. This overcomes the depression effects and acts to wash the blood, and aids elimination. One should watch for complications, such as dropsy of the serous cavities, pericarditis, endocarditis, or pulmonary edema.

THE TREATMENT OF ARTERIOSCLEROSIS.

In the whole range of medical practice, there are probably few conditions that are of more importance than the recognition and proper treatment of arteriosclerosis. As is well known, it comes on at varying ages, and is much influenced by habits and occupation.

The hardening and contraction of the arterioles are often the earliest intimation of what in later years will be serious heart or kidney diseases, or an attack of apoplexy. No doubt this condition has not received the attention it merits. It is the duty of the medical adviser to note and point out tendencies toward certain diseases, as well as to recognize and treat diseases that may be actually present. Prevention is a much more valuable service to a patient than the treatment of his complaint after its advent.

It is now generally admitted that the rheumatic and gouty condition favors the occurrence of rigid arteries. Certain poisons, as lead and alcohol, have also a share in the etiology of this state; so, also, have those forms of life that give rise to overwork and overworry. But perhaps no cause

stands out so prominently as wrong habits of diet. Jonathan Hutchinson has well remarked that there is no diathesis that is harder to fully establish than the gouty one; but when once established, there is none more difficult to get rid of, or more liable to have far-reaching effects upon the general health.

Setting aside the cases of arteriosclerosis due to lead poisoning, overwork, and worry, the majority of cases are of dietetic origin. The improper indulgence in foods and drinks is the *fons et origo malorum*. This being the case, what should be done?

In the first place, all persons with a tendency to rigid arteries should be prohibited alcoholic drinks. It is no longer necessary to argue this question. The patient must be cautioned against all forms of violent exercise or overwork; and further, he should be advised to arrange his affairs so as to have as little worry as possible. Butcher meats should be reduced; better still, cut off altogether. There is no fear of the patient starving. Enough animal and nitrogenous products can be obtained from milk and a little egg. In bread and many vegetables there are nitrogen-bearing compounds. The elimination from the dietary of alcoholics, meats, salmon, lobster, game, turkey, goose, duck, cheese, beans, the more highly nitrogenous foods, will, in time, relieve the system of those waste products that are instrumental in causing rigidity and contraction of the arterial system.

The emunctories should be kept active. The skin and kidneys should be made to do active duty. This can always be brought about by inducing the patient to drink plenty of water. Water once introduced into the system must come out somewhere, and its main channels of exit are the skin and the kidneys. There is no better solvent than water. It dilutes the bile and the urine, lessening the tendency in these cases to gall-stones and renal calculi. It dilutes and washes out of the system the compounds of uric acid that act so injuriously on the liver, kidneys, and smaller arteries.

With regard to drugs there need not be much said. If the hygienic and dietetic treatment be carefully observed, there will not be much need for drugs. One drug, however, deserves special mention. Potassium iodide is the drug of the arterial system. It need not be given in large doses; two or three grains in water, after meals, will prove quite ample. It will act better and cause less annoyance to the patient if it is combined with an equal dose of carbonate of ammonium.—*Canadian Practitioner*, December, 1900.

THE ABUSE OF DRUGS.

If one were to answer the question, What is the greatest abuse of the present day? it would be the indiscriminate taking of drugs as proprietary nostrums. The mischief that is constantly being done to the community by taking so much proprietary medicine is enormous. In the first place, the people are induced, by the wiles of the advertiser, to take some preparation, of the composition of which they know nothing. In this way very harmful drugs may be introduced into their systems. In some cases a dangerous craving may be acquired for the narcotics which enter into the composition of some of these nostrums. Persons are often taking drugs when they have no need for them. On the other hand, by the use of these drugs they are often laying the foundation for serious trouble.

In the next place, many persons take it upon themselves, by the aid of advertisements, to diagnose their own cases and prescribe for themselves according to the fancy that may strike them, as the result of the study of these advertisements. Wrong drugs are thus usually taken, and valuable time lost to the patient.

Another feature of the sale of medicines, as placed before the public by the nostrum vender, is the claim of curative powers that do not exist in any drug, or combination of drugs. All forms of heart disease are cured, no matter whether functional or organic. The kidneys in like manner are made to yield to the potency of some so-called cure; the granular contracted kidney once again assumes its normal shape, size, and texture; the rigid arteries become soft and flexible; and the health is again restored to its former vigor. All the experience of the medical world is given the lie. The crumpled, broken-down heart valves, and the small, hardened kidneys, are again compelled to do duty of perfect quality.

In all this we have the most monstrous fraud and deception. In some cases it is ignorance, so far as the vender is concerned, but in the majority of instances there is wilful deception for the love of gain. It is fraud of the most diabolical sort, and should not be tolerated for a single day. No man should

be allowed to advertise a quality for his goods which they do not possess. It is a variety of confidence game, or practice, that invariably humbugs the buyer and fraudulently enriches the maker.

The law is not strict on the sale of poisons, and certain noxious drugs; and yet, under the name of some proprietary article, bromides, chloral, opium, cocaine, alcohol, ergot, etc., can be obtained in any quantity.

A female regulator is put upon the market; an analysis shows it to contain ergot, savin, aloes, iron, hellebore, cotton-root, etc. Here you have an ideal abortifacient, as far as drugs are capable of accomplishing such work. Yet, if a physician gave a prescription for such a purpose, or introduced a sound, he would stand in the eyes of the law as a heinous criminal. But the proprietary medicine man can put such a compound upon the market, and in the advertisements suggest to the public what it is for, and nothing is done to him.

Here then is a crying evil. What is the remedy? One would be to prohibit the sale and advertising of proprietary medicines, but especially if they contain any of the drugs in the poison or noxious list. It may be some time before our legislators can be educated up to this standard. There then remains a partial remedy that should at once be put in force—the exact composition of every proprietary medicine should be printed in plain language on the wrappers. In this way the people could see for themselves that some greatly vaunted medicine was only ditch water. Further, these nostrums would be ordered off the market if they contained noxious or poisonous drugs.—*Canadian Practitioner*, December, 1900.

BOILS AND CARBUNCLES AND SOME POINTS IN THEIR TREATMENT.

Birdwood states in the *Indian Medical Gazette* for November, 1900, that bearing in mind the fact that the disease is probably due to a microorganism, the following points in treatment, not generally noticed, may with advantage be considered:

1. Pay scrupulous attention to personal cleanliness of the patient. Insist, as far as possible, on frequent changes of soiled linen. Pillow-cases may easily become infected when boils are in the neck, and may thus be the source of a crop of boils.

2. When the boil first appears, have the locality thoroughly shaved, then well washed with carbolic lotion, then dried and covered with a soft antiseptic pad. Bathe also with antiseptic lotion night and morning. These measures will tend to check the spread of boils in the neighborhood.

3. In a household, if one child gets a boil it is advisable to isolate him as far as possible from the other children till his boil is cured.

4. In a case of boils tell the patient to avoid washing the skin with irritating soaps, and do all you can to allay the irritable condition of prickly heat, which is in one way a predisposing cause.

5. When suppuration is established, the discharge should be received on absorbent antiseptic dressings. The patient should be cautioned not to squeeze the boil himself and receive the discharge on to a handkerchief or any piece of linen, which then becomes infected and is often left lying about.

6. Spraying the boil with carbolic lotion (1-in-40) twice a day for ten to fifteen minutes, as recommended by Whitla, will do much good; also small plugs of lint saturated with pure carbolic thrust into the mouths of a carbuncle seem to accelerate suppuration and to allay irritation.

7. Birdwood has found free incision across a tense boil gives considerable relief, but most will agree with Sir J. Paget that incision of a carbuncle has nothing to recommend it. Mr. Ruston Parker's treatment of excision and scraping in some cases of carbuncle seems to have much to recommend it. It is somewhat similar to the surgical treatment of malignant pustule. Under chloroform there is excision of the walls and free scraping out of the slough, and then the application of pure carbolic acid to the base. The cases in which this treatment is suitable are those cases of indolent chronic carbuncles with much pain and fever, and which, in old men especially, are a source of danger to life. Mr. Ruston Parker has treated sixteen such cases with the best result; not only is much relief given, but the case is quickly cured, and in some instances life has been saved.

THE GENERAL CARE OF THE SKIN CONSIDERED FROM THE POINT OF VIEW OF PROPHYLAXIS.

Jamieson writes in the *Edinburgh Medical Journal* for December, 1900, upon this important subject. He reminds us that the association of soap with ablution has come

to be a fixed idea in the British mind. "What! not use soap in my bath; why, I should never feel clean," is the common answer to the suggestion that it had better be discontinued. There is reason on its side, yet when we consider that much of the soap employed for toilet purposes contains more or less free alkali, often more than less, and thereby emulsifies the protective oleaginous ingredient of the epidermis, and so in a manner does away with it, soap as usually met with is not an unmixed advantage. The introduction by Unna of neutral soaps, to which an excess of unsaponified fat has been added—superfatted soaps—is an immense stride in the right direction. There are now many superfatted soaps in the market, and among them some really reliable ones, but it has to be borne in mind that it is to be a thoroughly good soap. It is quite possible to add lanolin or some other difficultly saponifiable fat to a soap which was originallly a very inferior soap, and then palm it off as a superfatted soap. Hence it is necessary to see that the soap is manufactured by a trustworthy firm, and it is well also to learn that it contains no cocoanut oil, as, if it does, it is not a proper skin soap. Neutral soaps, made from pure fats, and superfatted to the extent of from three to five per cent, should unquestionably be used in preference to any others. Medicated soaps are medicinal; they are not suited for ordinary use, but have their place, and a very restricted place it is, in the cure or amelioration of certain diseased conditions. The substitution of bags containing bran or oatmeal for soap is advisable, as by them the detersive effect is obtained while the defensive fat is left undisturbed.

Another important element in the care of the skin is the kind of water to be employed. Distilled, rain, or river water constitute perfection, but these are in many cases unattainable. We are not all in the position of Glasgow, with a practically pure water supply. Hard water, from its containing lime, acts deleteriously on the skin, and while there are chemical methods of softening such water, these are not available to the multitude. Some of the lime is deposited from water which has been boiled for a time and allowed to cool. The artificial additions to water, for the purpose of softening it, are apt to be harmful. Thus borax, soda, or ammonia render it alkaline and endow it with disadvantages similar to alkaline soaps. The sensation of softness imparted by these is deceptive. It arises from their combining with and saponifying the fat of the skin, hence they leave it harsh and dry. Bran, oatmeal, or starch lessen the injurious effect of the lime salts and are in themselves innocuous, hence such can frequently be mixed with the water with benefit. Glycerin diluted with water and the glycerite of starch are recommended as applications after the bath, to obviate the ill effects of hard water. These act through their hygroscopic power, and keep the surface moist, but at the same time they swell up the epidermic cells, rendering them unduly tender. It is a method which may prevent chaps forming in cold, drying winds. Of still more consequence is at once to seal up any chance crack or slight lesion of continuity, by placing over it a film of salicylic wool, and then painting this down with flexible collodion. In so doing we carry out the principle of the famous medical maxim, "*Obsta principiis*," which was, as some may remember, the motto of that much-loved man and excellent physician, the late Sir Douglas Maclagan, who among many other subjects took a deep interest in skin diseases.

Some portions of the body normally bear hairs, and some are wholly destitute of them. Exposure to the weather during adolescence and early manhood increases the hirsute growth, while constant covering checks its formation or leads to its disappearance. We see the effect of the former in the hairy legs of the Highlander accustomed to wear the kilt; of the latter in the bald crown of the hat-wearing professional or city man. Though there is desquamation from the scalp surface, as there is from the rest of the body, it is slight and trivial should the scalp be thoroughly healthy. To preserve it with the natural polish is what we should aim at. This can only be done by judicious attention. It is singular that there is a prejudice among many people against washing the hair. This may be accounted for perhaps in two ways: one, that in the female sex at least it is certainly rather a troublesome procedure to wash, and still further to dry, a copious and lengthy crop; and again, when washed with ordinary toilet soap, or with solution of borax as some do, the hair is left harsh and dry, and tends to fall more plentifully in consequence. But unwashed, effete epidermic particles in most cases accumulate around the roots of the hairs, and encourage if they do not directly cause diseased conditions. These cannot be removed by brushing, which, if at

all vigorously carried out, like the small-tooth comb—an abomination now all but banished—rakes the scalp and eventually renders the plight worse than before. If a well made fluid superfatted soap, in which the alkali is potash and not soda, be sprinkled over the head, then sufficient warm soft water be added from time to time, first to produce a lather, subsequently to wash out this lather, and with it the incorporated dust, the hair when dried will be found to be left soft and flexible, while the scalp has no sensation of tenseness. Or, in place of the soap, we may have recourse to an infusion of quillaia bark in warm water. This contains saponin, which emulsionizes the fatty matter, and floats off the dirt. Another safe and excellent shampoo is yolk of egg beaten up; this in like manner combines with the fat and renders it removable.

It may be gathered from what has been said that the proper use of a hair-brush is to polish and dress the hair, not to remove scurf. Therefore, a brush with long and fairly wide-set bristles should be used, not what is termed a hard and penetrating one. A comb with wide-set teeth should be used to arrange it, and in women it ought not to be dragged when put up. In many cases it is advisable to employ some artificial lubricant, and, as the outcome of many observations, fresh almond oil is that which has seemed to the writer to come nearest the natural unguent. Of course, it cannot quite replace it, for the hair in its growth attracts the fluid sebum from its gland, by capillary action, into its intimate fibrous structure, while we apply the oil from without. Almond oil is improved for this purpose by the addition of a little oil of eucalyptus globulus and resorcin. The former tends to keep it from rancidity, while the latter aids in maintaining the smoothness and polish of the scalp. This oil is applicable to the beard and mustache as well, and restrains the propensity to become gray. The best way to use it is to smear a little on the teeth of a dressing-comb, and thus convey it to the hair in passing it through.

INFLUENZA.

The *Medical Record* of December 8, 1900, has in its pages the paper of A. JACOBI on the treatment of this disease.

There is no specific for influenza, in his opinion. A purgative dose of calomel should be given, as the bowel is the principal point of attack in very young infants. The patient should be kept in bed in a room having a temperature of 70° F. or a little higher. The diet at first should be light. Alcohol and other stimulants are required only in selected cases, and in this respect influenza differs from certain other infectious diseases, notably typhoid fever and diphtheria. If the temperature is high, cold water is not indicated, either as a bath or as a pack. The irritative cough is apt to be aggravated by cold water. When there is much muscular pain and restlessness, a warm bath is often beneficial. A hot bath, except a very short one in the event of threatened collapse, should be avoided. Influenza pneumonias do better with warm than with cold packs. In the German collective investigation reports some observers praise quinine highly, while others express great disappointment with its action. When the vomiting is severe, rectal alimentation is indicated. Peptones and liquid albumins are readily absorbed into the colon, which even in the smallest infant is made accessible by raising the hips, but not raising the irrigator more than a foot above the anus. Dextrinized starch adds to the nutrient value of the enema. The best relief from medicines is secured by the use of morphine. A tablet containing one-sixtieth grain of morphine should be placed in the mouth of a child from two to four years old, there to be absorbed, or one-half to two drops of Magendie's solution might be given in the same manner.

The treatment of the symptom fever offers no hope of shortening the disease, but it contributes to the patient's comfort, and does not interfere with recovery. To be satisfied with depressing temperature is a great mistake, but to allow any influenza or any other disease to run its course, with no attempt to combat the obviously injurious effects of fever on the system, is equally reprehensible. Continuous fever, even though moderate, should not be allowed to run indefinitely without any attempt to check it. Nervines and analgesics are valuable aids to bathing, or as substitutes for baths, and they usually increase the comfort, and favor metabolism. Jacobi formerly asserted that acetanilid should be preferred among the poor, because of its low price, and antipyrin when solubility is important; but phenacetine is preferable to either when it can be given by the mouth, because of its superior action on the brain and on the skin. Antipyrin, when employed during normal conditions,

increases the pulse and blood-pressure; hence it is contraindicated in hemoptysis. It is not a nervine, as it acts chiefly upon the blood-vessels. To get the antipyretic effect the dose should be repeated in two hours. In general, its action is favorable. Phenacetine resembles acetanilid, but is milder; the dose should be one-fourth to one-half grain for infants and young children. Salipyrin should be given in twice the dose of antipyrin; it is usually better borne than antipyrin by neurotic persons.

In using these drugs it should always be borne in mind that influenza shows a strong tendency to prostration and heart debility, and hence when there is any indication of such an occurrence these remedies should always be guarded by the coincident administration of caffeine benzoate or salicylate. This is preferable to the use of alcoholic stimulants. When caffeine unpleasantly excites the brain it should be replaced by camphor in doses of one and a half to six grains. Camphor is soluble in four parts of sweet almond oil. A most useful though little used cardiac stimulant is Siberian musk. The ten-per-cent tincture should be given in doses of five to ten minims every half-hour for eight or ten doses. This remedy has many times tided Jacobi's cases over desperate crises.

INFANT FEEDING.

In the *Medical Record* of December 8, 1900, FISCHER has an article on this ever timely theme.

The most important point to be considered in the proper management of bottle feeding is to have pure cow's milk. Such milk can be secured only from a reliable dairy in which we are positive that all modern sanitary laws are so applied that the hygienic condition of the cow's stable is perfect. The principle of sterilization should be applied to everything in the stable—to the cow, to the milker's hands, and to all utensils used in milking and transportation, exactly as was outlined by Professor Baginsky in his paper on "Milk Supply," which Dr. Fischer read at the last meeting of the Section on Diseases of Children at Atlantic City in June, 1900. The principle of asepsis, so important in surgery, and which is really nothing more than absolute cleanliness, should be rigidly enforced.

Imitate nature in feeding. Nature has ordained for woman to feed her infant with raw milk, for it must be admitted that the breast milk of a woman is raw; it is neither boiled, nor sterilized, nor Pasteurized. Thus we should simply imitate nature in feeding the milk of the cow in the same manner as the infant at the breast receives it from its mother or wet-nurse.

There is a decided objection to raw-milk feeding owing to the contamination of milk with various pathogenic bacteria. Such risk, however, is reduced to a minimum when all the principles of modern hygienic measures are rigidly enforced. It is a well known fact that the prolonged use of sterilized or boiled milk will produce scurvy, and when scurvy exists, both sterilized and boiled milk must be discontinued to give place to fresh raw milk. Does it not seem more plausible in the face of such clinical experience to commence feeding at once with raw milk rather than risk the development of scurvy and be compelled to discontinue all other forms of feeding excepting raw foods? There is a certain deadness, or, to put it differently, absence of freshness, in milk that has been boiled or sterilized. It seems to be the lack of this same element of freshness which in the absence of fresh meat and green vegetables will produce scurvy in the adult. Speaking of the development of scurvy in children fed on sterilized or boiled milk, Rundlett says that changes do not take place in the albumin, fat, or sugar; but in the albuminate of iron, phosphorus, and possibly in the fluorin, vital changes take place. These albuminoids are certainly in milk, derived as it is from tissues that contain them, and are present in a vitalized form as proteids.

On boiling the change that takes place is due simply to the coagulation of the globulin or proteid molecule, which splits away from the inorganic molecule, and thus renders it as to the iron and fluorin unabsorbable, and as to the phosphatic molecule unassimilable. This is the change that is so vital, and it is this only which takes place when milk is boiled. It is evident that children require phosphatic and ferric proteids in a living form, which are contained only in raw milk.

Cheadle says that phosphate of lime is necessary to every tissue. No cell growth can go on without earthy phosphates; even the lowest form of life, such as fungi and bacteria, cannot grow if deprived of them. These salts of lime and magnesia are especially called for in the development of the bony structures.

Each child is a law unto itself, and its individual wants must be studied. One chil

will gain in weight on the same mixture on which another will lose in weight, thus proving the difference in the assimilation of the same food in various infants. Having chosen a given food for one infant, we must note the following factors, to be satisfied that it is thriving: First, the infant must appear satisfied after taking its bottle; secondly, there should be no vomiting; thirdly, there should be no colic; fourthly, the bowels must move unaided at least once or twice in twenty-four hours, depending upon the age of the infant —the stool should be yellowish-white and of a medium soft consistency; fifthly, the infant should sleep from four to eight hours at one time during the night; sixthly, the weight must be taken regularly once a week, and if an infant thrives it should gain at least six to eight ounces every week; seventhly, when a child's weight shows no increase the reason should be studied, and by all means the food changed, for the infant requires more substantial nourishment. The following table will give an approximate idea of the quantity of food suitable for the age of the infant:

1–2 mos.,		2 ozs.:		1/4	milk,	3/4	water;	feed	every	2	hrs.
2–4	"	3	"	2/4	"	2/4	"	"		2	"
4–6	"	4–6	"	3/4	"	1/4	"	"		3	"
6–8	"	6–8	"	4/4	"	no	"	"		3 or 4	"

The sentiments expressed at the last meeting of the Academy of Medicine by Professor Jacobi, regarding the use of modified laboratory milk, coincide with Dr. Fischer's views. His experience has been that children fed on laboratory milk have been backward in their development, after its use for a long time. When first used, children suffered with severe constipation. Later, a distinct atony of the stomach and intestines was seen; poor appetites, requiring nux vomica, were seen still later, accompanied by delayed dentition and rickets. Children using the milk always looked pale and anemic; their flesh was flabby. Such cases were among the wealthy, in which the best possible hygienic conditions prevailed. He has never had an opportunity to study its effect on infants reared in tenement houses, with the poorest hygienic surroundings. The percentage method of feeding has always appeared plausible to him, but the theory cannot be put into practice. We know, as Jacobi so well says, that mother's milk changes at almost each nursing, and we know by chemical analysis that mother's milk is different in composition several times during the day. It will be necessary, then, if we do intend to imitate nature, to change the formula of an infant several times a day.

It is a fact well known to chemists that once an emulsion of milk is broken up by centrifuging or other mechanical process, as in separating the top milk from the skim milk, we cannot have again as homogeneous an emulsion as prior to this breaking up; and, moreover, that we increase our trouble when we in addition seek to improve the quality of the milk by subjecting it to the process of sterilization.

When milk disagrees and the infant's stomach will not tolerate it, and vomiting is provoked, or when gastrointestinal trouble arises, then milk must be stopped. At such times Fischer has seen good results in many children follow the use of almond milk. This is made by scalding or blanching the almonds, then beating them up, using an ounce of water for each ounce of blanched almonds, and rubbing up this mixture, then expressing it through cheese-cloth. This should yield an ounce of almond milk for each ounce of almonds used. It is well known that quite a large quantity of vegetable proteids are contained therein, and it is therefore a nourishing substitute. This almond milk can be made at home, and is quite serviceable in the treatment of summer complaint.

Dextrinization is successful in children having subnormal gastric digestion. It should be used during illness only, and it is not advisable to feed healthy children with dextrinized foods. Nature supplies its own dextrinizing agents, which must be used, or the glands secreting them will become atrophied.

Frequently the infant's stomach requires assistance in the assimilation of food, particularly cow's milk. The examination of the gastric contents in weakened gastric conditions has always shown a deficiency in hydrochloric acid. Hence it seems more plausible to give the infant several drops of dilute hydrochloric acid after feeding.

In conclusion Fischer states that two drugs must always be considered in the management of infant feeding, especially the difficult cases: (1) nux vomica; (2) malt.

PRACTICAL HOME METHODS OF BATHING IN TYPHOID FEVER.

Dr. S. BARUCH recently discussed this phase of this subject. He said that the first impression of cold upon the skin was the so-called shock; it was really a physiological

irritant. The impression lasted a longer or shorter time, depending upon the method of procedure and its duration. The friction stimulated the contracted arterioles to dilate again, and performed the important normal function of propelling the blood, thus keeping up a proper peripheral circulation. The latter was usually so crippled in typhoid fever that the heart was compelled to beat faster and more forcibly. By the proper use of cold water the pulse diminished in frequency and gained in force. The skin assumed a rosy hue because its arterioles had been dilated in a tonic fashion. The countenance lost its apathy, the respirations were deepened, and the kidneys were aroused to renewed activity. Friction should always accompany the cold-water treatment—a fact which even at this late day needed reiteration and emphasis. As an illustration of how the cold-water treatment should not be applied in typhoid fever the speaker mentioned the abdominal ice coil, still so popular with many physicians. This was a direct violation of the fundamental principle of all hydrotherapy, that cold applications must be accompanied by frictions. In home practice the ablution was the simplest procedure. The patient was stripped, a blanket was placed underneath him, and first the back and then the anterior surface of the body treated to the ablution. It should be given with considerable friction, the temperature of the water being reduced from time to time until the temperature reached 60° F. The abdominal compress was another useful method of applying cold water. This consisted of three folds of toweling wrung out of water at a temperature of 70° and applied snugly, being covered with thin flannel. It should be renewed hourly. When the temperature persisted in remaining at 103° or above, the towel bath was appropriate. A towel was dipped into water at 85° F. and laid dripping and smooth over the entire back. Water at 70° was dipped up with a cup and poured on the upper left part of the back, and then this part was rubbed with the hand. This was done three times, and then the other parts of the back were successively treated in the same way. The water on the sheet was mopped up with a sponge, and then the anterior parts were similarly treated, care being taken not to use pressure over the iliac region. The temperature might be reduced five degrees each time until the temperature of the water for the towel reached 60° and that in the cup reached 50°. The "sheet bath" was still more potent, and was very useful when objection was made to the full bath, or the latter was impracticable. An old linen sheet or tablecloth should be dipped in water at 90°, and wrung out very lightly. The patient having been wrapped in this, water at a temperature of about ten degrees lower should be poured successively upon different parts of the body, and each part rubbed with the hands until it no longer warmed up. The typhoid fever patient should be given internally from four to six ounces of water at 40° every two hours, and this should be alternated with the same quantity of milk.—*Medical Record*, Dec. 8, 1900.

CHLORALAMID.

CLEVENGER tells us in the *Medical News* of December 8, 1900, that chloralum-formamidatum, the chemical name, which pharmacy requirements shorten into chloralamid, is constructed by the interaction of chloral (not chloral hydrate) and formamide. It dates from the experiments of Von Mering, the Strasburg clinician, in 1889, and has grown into universal esteem. The pharmacopœias of all other nations will assuredly follow the German in recognizing its value. The formamide is a stimulant which counteracts the blood-pressure fall of chloral, and, according to Reichmann's sphygmographic tests, chloralamid influences blood-pressure but little. Nor is there unfavorable action upon the temperature, respiration, circulation, or digestion.

It is decomposed by alkalies and heat and in water at 140° F. (60° C.), hence it should never be given in hot water, as has been improperly done at times. Twenty parts of water at ordinary temperature is said to dissolve the crystals, but Dr. Clevenger has found that thirty to forty parts of water saves much time in making the solution; weak acids facilitate its dissolving, and one and a half parts of alcohol rapidly unites with it; therefore, about three-quarters of brandy or whiskey, if standard, will also do so. Taken in powder the effect is delayed, though some practitioners persist in this form of dosing. With stomach acidity there would be more rapid assimilation. Claret is used occasionally, but in all instances where vinous or watery vehicles are solvents and time is to be saved, a concentrated alcoholic or elixir dose should be poured into the vehicle.

Its slightly bitter taste is scarcely worth consideration, but to disguise it an approved formula is:

℞ Chloralamid., ʒ ij;
Spirit. vini gallici, f ʒ j;
Syrup. rubi idæi, f ʒ j.
M. Sig.: Half-teaspoonful at a dose.

Lettow's prescription for an enema is:

℞ Chloralamid., gr. xlv;
Acid. hydrochlor., ♏ ij;
Alcohol, ♏ xv;
Aquæ destillat., f ʒ iij.

A solution made with twelve grains in two and a half drachms of water may be used hypodermically when such disorders as rectal carcinoma deprive a patient of sleep.

The usual dose of chloralamid is 15 to 60 grains one-half hour before bedtime. It takes effect usually in one hour. One dose has sufficed to secure sleep on a subsequent night as well as upon the night when used. The German Pharmacopœia mentions 60 grains as the largest single dose, and 120 grains as the largest daily dose.

There is no liability to addiction, no ill consequences, no cumulative effect; and as it does not influence the viscera and is not an irritant to any mucous membrane, it should more rapidly supersede chloral hydrate, as it is gradually and surely doing.

The relative strength is assumed to be 45 grains of chloralamid, equaling 30 grains of chloral hydrate, but in practice the doses are about the same, with the advantage that while a minimum dose of chloral hydrate has killed, no amount of chloralamid has been attended with fatal result so far as reported. The blandness and safety of chloralamid without after-effects should certainly recommend it against the danger and harshness of chloral hydrate, which destroys digestion by setting up gastritis, and its constant administration has cut off chances of recovery from insanity. He believes that insane asylums should in the name of humanity use chloralamid in preference to chloral hydrate. In organic heart disease chloralamid is safer, and there is less danger and dread in giving it where there is any cardiac complication. Cervello claims that chloral injuriously affects the heart, and that it created a difference from normal blood-pressure of from 50 to 80 millimeters, while chloralamid differed within the limits occurring during ordinary sleep 17 millimeters, so chloralamid, he infers, influences the heart but slightly.

Phenacetine, phenocoll, lactophenin, and antipyrin are well known minor pain alleviators which incidentally and indirectly may cause sleep, but against each of these have been charges of their causing heart interference and cyanosis. Acetanilid of this series was regarded as the worst in this respect, and antifebrin was presumed to be only a proprietary form of the former. Certainly, pseudoscientific "headache powders," extensively advertised, have here and there occasioned death; this has been laid to commercial impurities in the acetanilid. Reputable physicians are afraid to make too common use of such things, but the nostrum advertiser has neither fears nor scruples, an instance of ignorance and cupidity rushing in where knowledge fears to tread.

Conium maculatum was a favorite motor paralyzant in maniacal states, but is too dangerous for extensive use. Ergot is probably not used enough as an arteriole constringent where congestions produce pain or sleeplessness. Bromides are being dispensed more and more, even to a reckless extent, while their protracted use causes debility and poverty of blood. Cocaine is being abused in quack preparations, such as wines, and the latter has increased the number of epileptic fits. Hypnone, somnal, and urethane have been practically discarded through unfavorable reports. The feebleness and unreliability of lactucarium shelve it as a curiosity more than a medicine.

THE USE AND PLACE OF CAUSTICS IN THE TREATMENT OF MALIGNANT DISEASES.

In the *Columbus Medical Journal* for November, 1900, M'GAVRAN tells us his views in regard to these rather neglected measures. In the opinion of Dr. M'Gavran caustics should not be used in the treatment of cancers of the breast. He would also exclude the use of caustics in the treatment of uterine cancer. Some cases of disease confined to the vaginal portion have perhaps been cured by the actual cautery, by chromic acid, and the like, but the only hope of permanent relief is by an exceedingly early diagnosis and removal of the entire uterus. No time should be wasted with caustics. Caustics have no place or use in the treatment of cancer of the tongue, tonsils, eyelids, orbit, penis, scrotum, and rectum. He has never used caustics in the treatment of cancer of the lip, but has a number of times removed by excision carcinomata of the lip, without

having any local or regional recurrence. He would recommend to every physician as soon as he makes a diagnosis of cancer of the lip to make an early excision, and to do it himself, and not be a distributing agent here, there, and everywhere. It is an easy operation, devoid of danger. In his opinion and in his experience all objections to caustic treatment disappear when we come to consider cutaneous cancer. Epithelial cancer of the nose, cheek, forehead, and neck can be cured by the timely use of caustic agents judiciously and properly applied, and in the majority of cases of cutaneous cancer far superior to the knife in securing their permanent removal with the least amount of deformity.

The writer submits five typical cases of epithelioma of the face which have been successfully treated with caustics:

1. Patient with epithelioma located upon the center of the forehead in the form of a smooth, well defined, slightly nodulated tumor, about two inches in diameter, rising abruptly from the surrounding skin to the height of half an inch, with a flattened surface, firm about the periphery, but somewhat fluctuated in the center, and of a dusky, purplish hue.

2. Another, with epithelioma of the nose, presenting a reddish, nodulated tumor the size of the finger-nail and slightly raised above the surface of the skin, from which it rose abruptly with a smooth, elevated, pearly border. It was covered with a thin crust or scale. The history of the affection showed it to be of several months' duration, having first been noticed as a small pea-sized nodule in the skin without sensation of any kind, but which grew gradually until it reached its present size. Recently the patient had experienced a slight pricking or itching feeling in the tumor, and it had grown constantly, although slowly, from its first appearance.

3. This case was very similar in character and history to the second, the disease having extended to about the same size and being situated on the cheek just at the side of the nose.

4. The point attacked was the nose, the entire cartilaginous portion of which had been destroyed. The borders of the septum and the remains of the alæ nasi were infiltrated, enlarged, and in one or two places suppurating slightly. Disease appeared to be extended into the nares.

5. Epithelial cancer situated in the temporal region, near the outer canthus of the right eye. The cancerous growth was confined to the skin, without involving the mucous membrane at the outer canthus of the eye.

These and other similar cases represent the class of malignant diseases wherein the writer recommends the use of caustics.

The choice of a proper escharotic is of great importance. Mild cauterization should never be employed. The theory of Unna, Dühring, and their disciples that mild applications such as resorcin, pyrogallol, and aristol may bring about a modification of cell structure, which will render the disease benign in its tendency, is a plausible one, which has often led to a condition as hopeless as it is inexcusable. Walshe was correct, when as long ago as 1846 he laid down this principle: Caustic agents should be applied in such manner as to produce the requisite effects by single application, otherwise the irritation gives not necessarily, but commonly, new activity to the disease.

To be brief, M'Gavran states that all weak caustics — for instance, nitrate of silver and mineral acids — should never be employed. Caustic potash, chloride of zinc, arsenous acid, are the three agents that have given the best results. The caustic with which he has had the most experience, and which has given him the best results, is the chloride of zinc ointment, or what is known as Bougard's caustic compound, and it is as follows:

Wheat flour, 60 grammes;
Starch, 60 grammes;
Arsenic, 1 gramme;
Cinnabar, 5 grammes;
Sal ammonia, 5 grammes;
Corrosive sublimate, 0.50 centigramme;
Solution of chloride of zinc at 52° F., 245 grammes.

The first six substances are separately ground and reduced to a fine powder. They are then mixed in a mortar of glass or china, and the solution of chloride of zinc is slowly poured in, while the contents are rapidly moved with the pestle, so that no lumps shall be formed.

A thick layer is then spread on cotton and left in position from ten to twenty-four hours. If the application has been successful, all of the macroscopical cancer mass should appear to be necrosed completely and the tissue beyond inflamed. Warm poultices are applied until the slough separates, usually in three days. Few cases require a second application. The ulcer may be dressed with aristol ointment. All exuberant granulations are to be kept in check by the usual methods. It is important to so stimulate the ulcer as

not to permit scabs to form. The writer has used caustic potash a few times to soften the tumor before employing Bougard's caustic. He has never used Marsden's paste.

For the successful use of caustics the physician must be able to recognize the form of tumor, he must appreciate the manner of extension of growth, and the necessity for prompt and complete removal and destruction of all the pathological epithelium. He must treat his cases energetically. The desire not to give the patient too much pain is usually the cause of their imperfect treatment. During the application of the caustic M'Gavran usually gives a hypodermic of morphine every five or six hours. Some cases do not require it—in fact, he has had patients say the treatment was painless.

A PLEA FOR THE EARLIER RECOGNITION OF SQUINT IN CHILDREN BY THE FAMILY PHYSICIAN, AND THE EARLIER APPLICATION OF THE METHODS OF TREATMENT.

VEASEY states in the *Medical News* of December 1, 1900, that the family physician, as a rule, has his attention directed to this condition shortly after its appearance. If he is indifferent, and says (as we have known to be done frequently), "Oh, the child will outgrow it, let it alone," in most cases the squint will become permanent and a portion of the visual acuity of one eye may be lost. On the contrary, if the proper treatment be instituted much can be done toward relieving the deformity and at the same time preserving the useful vision of both eyes, as well as in avoiding the many neurotic ailments to which eye-strain frequently gives rise.

It is not within the province of this paper to review the different causes of squint. It might be well to add, however, that it is not caused by looking at a lock of hair falling to one side of the face, by fright, by imitation of another cross-eyed person, or, as suggested to him by the mother of one of his patients, by "eating a dish of cold beans purloined from the kitchen pantry."

The large number of cases, as previously intimated, depend upon some disturbance between the relation of accommodation and convergence, a condition generally brought about by some error of refraction. It would seem, therefore, that the proper procedure in all cases of squint, excepting, perhaps, those of paralytic origin, would be to determine whether there is present any error of refraction. If one is familiar with the use of the ophthalmoscope this can be readily done; if not, one drop of a solution of atropine, four grains to the ounce, should be instilled into each eye night and morning, and the child's eyes protected from strong light; in fact, dark glasses should be worn out-of-doors if the child is old enough to keep them on. Should the squint disappear, or become very much better, it will prove that an error of refraction is present in the case, the strain upon the accommodation having been relieved by the action of the atropine upon the ciliary muscle, and the patient should be carefully glassed. Should the patient be too young to wear glasses, the atropine instillations, in half strength, may be kept up at varying intervals in the meantime in order that the excessive accommodative efforts may be relieved. The youngest patient for whom glasses were prescribed by the writer was three years of age, a case of convergent squint with Jacksonian epilepsy, in which the squint disappeared and the number of convulsions was markedly reduced. Frequently little ones from three and one-half to five years of age have worn glasses, and complete correction of their squint has resulted in a comparatively short period of time.

If the wearing of glasses for several weeks fails to correct the defect, a system of muscle gymnastics known as "orthoptic exercises" should be employed. The apparatus required is an ordinary box stereoscope with a series of double pictures. The patient is first taught to recognize both pictures on the cards, or to see double, thus showing that both eyes are used at the same time, and after this has been accomplished to fuse the two pictures into one. This method is of very little use in cases of high degrees of squint in which the glasses produce but little change; but in cases of low degree, or in cases of residual squint after operation, it is decidedly of the greatest value.

Should the wearing of the proper glasses and the faithful systematic employment of orthoptic exercises fail to cure the squint, recourse must be had to operative measures. This usually consists of a tenotomy of one muscle or an advancement of its opponent, or both, depending upon the amount of deviation to be dealt with, the variety of the squint, the strength of the opposing muscle, and the condition of the visual acuity of each

eye. If the defect is convergent the eyes should not be entirely straightened at the operation, but a small amount of residual squint should be permitted to remain, as there is always a slight after-tendency to divergence.

For the same reason in operating for divergent squint it is better to produce a very slight convergence.

As to the age of the patient, it is best to wait until the child is about six years old, though there are a few cases in which earlier operations seem advisable.

These few brief notes give but a meager outline as to the methods to be followed in the treatment of concomitant convergent squint, and are offered principally to direct the attention of the family physician to the condition upon its first appearance, so that it will not be put aside as something to be outgrown, but will receive the prompt attention it deserves.

STOMACH CONDITIONS IN EARLY TUBERCULOSIS.

REED states in the *Philadelphia Medical Journal* of December 1, 1900, in a paper on this subject, that in real tuberculosis the secretion of HCl in the stomach is very frequently excessive, the peptic glands being in a condition of irritability which causes stimulant remedies of the creosote class to disagree and act injuriously.

Oils tend to depress the secretory function of the stomach, and in consequence cod-liver oil is likely to help the cases which the creosote class of drugs hurt, but, on the other hand, hurts the cases in which the gastric secretion is inactive, the very ones in which creosote and the like often do good.

Therefore it ought to be the rule to ascertain the condition of the secretory function of the stomach before pushing either class of remedies.

When analysis of the gastric contents cannot be made, it is safer to combine creosote with cod-liver oil, so as to let one neutralize the other in their influence upon the stomach.

The motor function is very generally depressed in tuberculosis, and must be restored before a cure can be brought about. Drugs avail little in this direction, but diet, exercise, especially in the open air, faradism, and abdominal massage, are all valuable means of effecting the result.

TREATMENT OF SIMPLE CHRONIC CATARRH OF THE NOSE.

BERNDT writes in the *Columbus Medical Journal* for November, 1900, of this disease. He thinks that the first requisite to success is to keep the nasal cavities clean. This is best obtained by the use of the postnasal douche. He never uses nasal sprays, for the simple reason that the amount of medicament thus applied is so small that it is useless, and then besides, the amount of pressure required to force the spray throughout the nasal chambers is so great that the medicine could with ease be forced into the Eustachian tubes, and so cause considerable trouble.

By means of the postnasal douche a larger and sufficient quantity of medicament is applied, and the inspissated mucus and crusts thereby softened and removed; and there is absolutely no danger of any of the fluid entering the Eustachian tubes, from the fact that the direction of the force is away from and not toward their openings into the pharynx.

The solution that Berndt uses is made by dissolving one of Seiler's alkaline antiseptic tablets in an ordinary-sized glass of warm water. The amount of solution is used three times daily. This part of the treatment is carried on at home by the patient himself. Berndt usually has him call at his office every third day and make local applications himself. After the membranes have been thoroughly cleansed, oleaginous applications are indicated to protect the surface, stimulate the absorbents, contract the blood-vessels, disinfect and render the mucosa less sensitive.

An effective treatment consists in the application of nitrate of silver water solutions, varying in strength from one- to ten-per-cent, followed by menthol in olive oil, of the strength of from two- to twenty-per-cent. These remedies he applies directly to the tissues, with the aid of a head mirror and speculum, by means of the cotton swab. The whole surface of the nasal chambers is literally painted with the above named solutions. This treatment is best given two or three times a week by the physician, while the patient pursues a home treatment with the postnasal syringe and solution above mentioned. By this treatment alone the writer has with almost uniform success treated sixty-seven cases in the past year. The few unsuccessful cases were those in which the catarrh was passing over into that variety known as atrophic catarrh, which, when it becomes offensive, is called ozena

This latter variety will resist almost every known treatment.

Berndt never uses cocaine as a therapeutic measure, because it is not of such a nature as to effect permanent results, and because of its imminent danger of converting one's patient into a cocaine fiend; he only uses cocaine as a surgical anesthetic.

Bougies and dilators of medicated gelatin, hard and soft rubber, and metal, are sometimes useful in reducing the engorgement of the turbinated bodies, and overcoming contact and pressure of the bodies on the septum. The bougies adapted in form and size to the individual cases are inserted between the turbinates and septum for a few minutes at a time at first, beginning with the smaller, and used on the same principle as sounds and dilators in other departments of surgery. When the engorgement of the vessels of the turbinated bodies produces great swelling of those structures, and consequent nasal obstruction that proves unyielding to the methods already mentioned, it has been his plan to use the cold wire snare as in hypertrophic catarrh.

Of course, the question of proper clothing must always be considered in the treatment of all forms of catarrh.

THERAPEUTIC STUDIES OF HEROIN HYDROCHLORIDE.

The *Medical News* of December 1, 1900, has in it an article by HYAMS on this drug. He reminds us that heroin hydrochloride is a neutral salt of heroin, a new morphine derivative, and is a white, odorless, crystalline powder of slightly bitter taste, freely soluble in water, acetic and dilute sulphuric acids. Its physiological action has been aptly and concisely described as that of a "respiratory stimulant and a sedative to the respiratory mucous membrane." Its action in relieving cough and dyspnea is prompt, and its ready solubility renders it peculiarly suited for hypodermic administration, especially where immediate results are required. It has little if any antipyretic properties; its action on the temperature is not marked, prominent, or constant. In the majority of Dr. Hyams's cases, he has noticed a slight reduction, but not sufficient to entitle it to practical consideration in this regard.

Respiration is profoundly influenced in all cases. There is a decided diminution in the frequency of the respiratory movements, with a prolongation of the inspiration and an increase of the force of expiration. The elimination of bronchial secretion is promoted, thus aiding in the relief of dyspnea. The pulse becomes slightly diminished in frequency, and likewise somewhat fuller. It is in no sense a hypnotic, except that it indirectly relieves the distressing symptoms which prevent sleep. In therapeutic doses there is no disturbance of the gastric functions. Except for slight nausea noticed in one case no ill effects were observed. Its action on the intestine seemed to be a slightly constipating one. To overcome this it may be advantageously combined with cascara sagrada.

Dr. Hyams has found the drug well borne in both the young and the old, especially so in the former. He considers this a point of special moment. As an anodyne in painful affections it ranks much below either morphine or codeine.

The after-effects which the writer has noticed have been a slight nausea in one case, dizziness in two cases, languidness in two cases, and a pharyngeal irritation, with constant desire to clear the throat. He adds that none of these sequelæ was of a serious nature, and they soon passed off without special treatment.

In cases marked by a diminution in the expectoration, the drug may with advantage be combined with either the iodide of potash, ipecac, terpin hydrate, or squill, in such ways as may suggest themselves in each individual case. As mentioned, in cases attended with constipation, the addition of cascara sagrada is effective.

The average dose by mouth is from $\frac{1}{12}$ to $\frac{1}{8}$ grain, three times daily. It is preferably given after meals, especially when there is a diminution of gastric secretion, in which condition, if dissolved in an acid medium and taken after the ingestion of food, it fulfils all requirements. It may be given in powder, pill, tablet, or solution. It is freely soluble in acetic acid and dilute sulphuric acid, and although the former seems to be the solvent most frequently used, Hyams has seen no advantage that it possesses over the latter. After the prolonged use of the drug, as in tuberculosis, larger doses are required. For prompt effect it is employed by hypodermic injection, for which its ready solubility in water renders it especially suitable. Four to eight minims of a two-per-cent solution represents $\frac{1}{75}$ or $\frac{1}{4}$ grain, the smaller dose being the average amount necessary. The incompatibilities to its use internally are alkalies and apomorphine.

AN IMPROVED TECHNIQUE IN AMPUTATION OF LARGE RECTAL PROLAPSE.

RYERSON (*Medical News*, vol. lxxvii, No. 23) in a case of large rectal prolapse notes that the following method of carrying out the procedure of amputation of the prolapse proved to be comparatively easy of performance, and was followed by a most excellent result. The patient was a male, in whom the mass protruded about five inches, and it had been in existence for five years.

Analgesia was effected by means of spinal cocainization. The patient was placed in the combined lithotomy and Trendelenburg position. Being fully conscious he was able to bear down forcibly and extrude the prolapse fully, thus doing away with the necessity for traction upon the latter. A row of fenestrated or ring-headed forceps (common artery clamps will answer, but do not hold so well) was placed just in front of the junction of the mucous membrane with the skin of the anus in such a manner as to pinch up a circular fold of the mucous membrane of the outer cylinder for the entire circumference of the outer cylinder of the gut, this incision extending through the mucous membrane only. Its proximal edge was dissected back for half an inch. Two clamps were now placed, one upon either side, at the point of the prolapse, or the place where the outer cylinder of the gut returns to form the inner cylinder. With the mass thus steadied and the two cylinders identified, the index-finger of the left hand was passed up the inner cylinder, and with this as a guide the circular incision already made in the circumference of the outer cylinder was deepened to the extent of a half-inch so as to include the remainder of the thickness of the latter and the inner cylinder through its entire thickness to the finger inside the latter. A suture of catgut was now placed so as to include the entire thickness of the two cylinders where the half-inch opening was made, with the exception of the turned-back mucous membrane cuff at the anal mucocutaneous margin grasped at first by the fenestrated forceps. This step of the operation was repeated until the entire circumference of the cylinders was traversed, save that each subsequent suture was first applied and the incision extended afterward. Care was taken that each extension of the incision was carried no farther than the area previously secured by the suture.

Throughout this portion of the operation a stream of warm borosalicylic (Thiersch) solution was kept playing upon the parts. When the posterior portion of the circumference was reached the mesenteric attachment of the gut was encountered. This was treated precisely as the anterior portion, no difficulty being encountered in securing the vessels of the mesentery in the suture. As the last suture was applied the final cut was made in front of it, completing the amputation of the prolapse. The dissected-back mucous membrane at the mucocutaneous margin, which up to this time had been held in the grasp of the forceps first applied, was now replaced and sutured in position over the first row of sutures. Alcohol-boiled catgut was used as suture material throughout the entire operation. The patient suffered not the slightest pain during the operation, nor inconvenience either then or thereafter from the spinal cocainization, save slight nausea and mild headache. An opium suppository was placed high up in the bowel, and the parts replaced. A light tampon of zinc-oxide gauze was placed in position for forty-eight hours, after which it was removed and a castor-oil cathartic given, followed in three hours by a sweet-oil enema.

The advantages of this method consist: (1) In the use of the combined lithotomy and Trendelenburg position, in order to prevent the descent of the small intestines during the operation, and thus providing against injury to these during the suturing. (2) In turning back a cuff at the mucocutaneous margin for the purpose of preserving the normal conditions at the rectal outlet, and at the same time permitting the removal of all the relaxed and overstretched mucous and submucous structures at this point; this cuff also provides a covering for the sutured edges of the stump of the prolapse and diminishes opportunity for subsequent infection. (3) In the step-by-step application of first a suture and then an extension of the incision through both cylinders to correspond with the sutured area, in this manner avoiding exposure of the peritoneal cavity to infection.

DIAGNOSIS AND TREATMENT OF INTRACRANIAL TUMORS.

BRAMWELL (*Medical Press and Circular*, vol. cxxi, No. 18, 1900) calls attention to a very small group in which a tumor has been present for years without producing any symptoms at all. This is illustrated in the following case of abscess of the brain. The

patient was a strong, healthy man, who was suddenly seized with an epileptic fit, became paralyzed and aphasic, and died in ten days from an evidently advancing cerebral lesion. Tumor was one of the things thought of, abscess was another, cerebral thrombosis with softening was a third. Abscess was rejected because there was no apparent cause for abscess. Tumor was rejected because the patient had been absolutely well until the commencement of the symptoms; he had never previously had any head symptoms whatever, and had not suffered from syphilis. It was thought that the case was one of cerebral thrombosis with softening, and for that reason it was decided not to operate. On post-mortem examination a very large abscess, full of stinking pus, was found in the centrum ovale on the left side, and in addition there was a firm old tumor about the size of a walnut which must have been present for many years without producing any symptoms. It is an extremely rare condition, and such a tumor cannot, of course, be diagnosed.

In a second group of cases of intracranial tumor there are well marked symptoms of a general kind—headace, vomiting, giddiness, and double optic neuritis, sometimes generalized epileptic fits, but no localizing symptoms. In this group a very large number of cases are included—cases in which there are merely general symptoms without sufficient localizing symptoms.

A third group of cases, which is also very large, is one in which in addition to well marked general symptoms there are well marked localizing symptoms, such as localized paralysis or localized spasm or hematopsia, or other well defined localizing symptom, which enables it to be said that there is a tumor, but not, with exactitude, where that tumor is situated.

A fourth group, which is larger than the first but much smaller than the other two, is one in which there are no general symptoms, but only localizing symptoms. There is no headache, no vomiting, no giddiness, no optic neuritis, but some well marked localizing symptom such as Jacksonian epilepsy is present.

In a case observed by Bramwell there was practically ho headache, there was no vomiting, and no optic neuritis. There were, however, well marked localizing symptoms which enabled the tumor to be located. By the method of exclusion, the conclusion was arrived at that the discharging lesion, which was situated in the upper part of the motor area for the left upper arm, was in all probability a tumor.

A very important point in certain cases, for purposes of prognosis and particularly of treatment, is the pathology of the tumor. The most common forms of intracranial tumors are gliomatous or glioma-sarcomatous tumors, syphilitic tumors, tuberculous tumors, and cancerous tumors. There are other rarer forms, such as fibromata, but their rarity makes them of far less practical importance. In this particular case syphilis could be excluded because the patient definitely stated that he had never had it, there were no obvious indications of former syphilis on the surface of the body, and the style of the symptoms was not such as to suggest syphilis. Further, in syphilitic cases the symptoms are usually relieved by antisyphilitic treatment—at all events for a time—and he had been treated by iodide of potassium for the five months of his illness before coming to hospital.

There was no suspicion of tubercle nor primary cancer outside the cranium.

Here again the pathological diagnosis had also to be made by the method of exclusion, the conclusion being that the tumor was a glioma—probably of small size—affecting the upper part of the motor area for the arm on the right side of the brain.

The prognosis in such a case, unless the tumor can be cut out, is of course extremely bad. After treatment for a week on full doses of iodide of potassium, together with bromide of potassium and chloral hydrate, with the object of relieving the spasms, Mr. Cotterrill performed an operation. A large flap of bone was reflected with the scalp adherent to it. A large portion of the motor area of the brain was thus exposed; the bone and dura were found to be quite natural. No alteration in the consistency of the brain could be detected, and there was nothing which could be definitely identified as a tumor. The exposed area of brain was stimulated with the faradic current, but no response (spasm) resulted. A fine trocar was then inserted into the brain tissue in various directions; nothing but clear cerebrospinal fluid was withdrawn; the trocar had evidently penetrated into the ventricles. It was therefore decided to do nothing more; the flap of bone was replaced after the dura had been carefully sewn together with silk stitches, and the scalp wound was sewn up with horsehair. In the course of a fortnight the patient

was absolutely well, so far as the effects of the operation were concerned. With regard to the effect of the operation on the fits, almost immediately after the operation he had a return of his spasms, and from this time he continued to have the fits just as before. He was again put upon iodide and bromide of potassium and chloral hydrate, but no improvement resulted. About a month or six weeks later he returned home, and a few days after that he had a general epileptic fit and died in it.

TREATMENT OF DUPUYTREN'S CONTRACTION, AND OTHER POINTS IN THE SURGERY OF THE HAND.

TUBBY (*Lancet*, No. 4037) adopts the following measures for Dupuytren's contraction:

The hand is made absolutely aseptic. As an anesthetic, chloroform is preferred to ether. An Esmarch bandage is placed around the upper arm to prevent obscuration of the field of operation. An incision is then made vertically over the most prominent band of fascia. Before removing the fascia, the digital vessels and nerves are defined as they emerge from the divisions and are traced back by cutting through the thickened fascia toward the wrist. The affected structures are then removed, and often the finger or fingers can be straightened. In cases where the fingers are involved, a small, fine tenotome is passed between the skin and the bands on the lateral aspects and the fibrous tissue divided. Torsion is used instead of ligatures to prevent spurting of arteries. The wound is sutured with horsehair. If there is a hiatus of skin at the roots of straightened fingers a small plastic operation is performed, and a little skin is slipped down to cover the spot. Sal alembroth dressings are used, and rigid asepsis must be continued until every scab has disappeared.

In the cases of club-hand which Tubby has seen, he has been content to divide the contracted tendons and to gradually improve the position of the hand by massage, passive movements, and a retentive malleable splint.

In cases of division of the tendon in the hand, complete union, even after most careful suture, depends on some facts, especially (1) the index of tension at which the muscle and tendon are set; (2) the limitation of retraction of the tendon by bands of fibrous tissue binding it in its grooves; and (3) the character of the structures at the spot where division of the tendon occurs. These three points should be remembered in forming a prognosis as to the results of tendon division.

PNEUMOCOCCIC ARTHRITIS.

CAVE (*Lancet*, No. 4037), after studying thirty-one cases of pneumococcic arthritis, one of which he treated himself, observes that the association of the arthritis with other localizations of the pneumococcic infection is the rule, that this associated lesion is commonly in a vital part, and more directly threatening to life than is the arthritis. Besides the occurrence of pneumonia in twenty-eight out of the thirty-one cases, there was often a wide-spread infection of the system by the virus with malignant endocarditis (6 cases), pleurisy and empyema (5), pericarditis (2), nephritis (3), meningitis (6), and peritonitis (1). In some of the cases there was a simultaneous inflammation of more than one serous membrane.

The morbid anatomy of the joint infected by pneumococci is essentially that of any other septic arthritis.

In mild cases, or those of short duration, the synovial membrane alone may be affected, with less of polish and injection of the fringes. In many, however, the cartilage is partly or completely eroded, and the surface of the bone is laid bare. In the older or more virulent cases the ligaments and cartilages, and in some the articular ends of the bones, are completely destroyed. Pus may perforate the capsule and penetrate several inches along the intermuscular planes or the sheaths of tendons.

Ten cases of the thirty-one studied gave direct evidence of the situation of the infection in a previously damaged joint, a fact of interest when it is compared with the experimental investigation of the pathogeny of the affection in animals.

The observations of numerous investigators are thus summarized: (1) The injection of a virulent culture of the pneumococcus directly into a joint of a susceptible animal is almost invariably followed by acute suppurative arthritis. (2) The subcutaneous injection of virulent cultures after the previous excitation of an aseptic inflammation in a joint may give varying results, either negative or positive. (3) The intravenous injection of virulent cultures with associated aseptic traumatism of a joint leads to arthritis

much more certainly than do injections by the subcutaneous method. Bezançon and Griffon have succeeded in producing an experimental pneumococcic arthritis by modifying the resistance of the animal experimented on in relation to the virulence of the pneumococcus. Leroux sees in this arthritis after partial immunization a correspondence with the clinical experience that arthritis usually supervenes after a pneumonia has run its course or toward the end of an attack, when a condition of greater or less immunity has been acquired.

The symptoms of pneumococcic arthritis vary from pain and slight swelling limited to a single joint to an intense inflammatory edema of the whole neighborhood of the articulation, or of a whole limb, with severe pain, heat, and redness, with abnormal mobility from destruction of the ligaments, and with grating of the bared surfaces of the bones. The fever is generally high (from 102° to 104°). The nature of the arthritis can be determined only by its association with pneumonia or other pneumococcic infection, and by bacteriological examination of the joint contents. In cases that recover progress is slow, and the function of the joint is generally permanently impaired.

In suppurative cases, the treatment may be aseptic incision of the joint, with flushing, drainage, and fixation, as in any other acute arthritis. Cases where the effusion is serous or serofibrinous may be treated by fixation on a splint with moderate compression by a bandage over cotton-wool. It is a question whether an arthrotomy for the removal of the morbid products would not be followed by a speedier cure and more favorable results as regards the ultimate restoration of function to the joint, and the removal at the same time of a possible source of generalized infection. In any case convalescence may be tedious and prolonged, with much stiffness and adhesion in and about the articulation. This condition must be treated by massage, by douches and other hydrotherapeutic measures, or by hot-air baths, and when it seems necessary by forced movements of the joints. All cases should be followed by suitable exercises for the restoration of wasted muscles and the preservation of the mobility that has been gained.

FREE BODIES IN JOINTS.

SCHMIEDEN (*Archiv für Klinische Chirurgie*, Bd. 62, Heft 3) had under observation forty-nine cases of loose bodies in joints, forty-four of which were subjected to operation. In all the healing was by first intention. In nearly all the joints treated there were secondary changes incident to the presence of loose bodies. Often these changes were most marked. The method of operating is as follows:

After thorough disinfection, the loose body is fixed by the finger of an assistant in that part of the joint nearest to the skin. An incision is then made through the capsule. The loose body is grasped with a pair of hooked forceps and is withdrawn. The capsule is closed by a few catgut sutures, and the skin by a silk thread. The joint is splinted for eight days, and on the tenth or twelfth day motion is begun. If this causes any synovial exudate the patients wear a light pressure bandage.

CASTRATION IN PROSTATIC HYPERTROPHY.

LANZ (*Centralblatt für Chirurgie*, No. 50, 1900), on the basis of four cases which he has operated upon, commends castration in the treatment of prostatic hypertrophy as a means of reflexly occasioning decongestion of the prostrate. Since this procedure can be accomplished under local anesthesia it is quite without danger to old and weak people. In three cases he has accomplished complete symptomatic cure. After the first day patients are allowed to be up and about. For the purpose of producing as much destruction of the deferential plexus as possible, the cord is divided high up.

TREATMENT OF WOUNDS OF HEART BY SUTURE.

ELSBERG (*Journal of Experimental Medicine*, September and November, 1899) has conducted a series of experiments on dogs and rabbits by which he has found that their hearts could be easily grasped with a forceps and the needle and suture readily passed. He infers that the difficulties of this procedure in the human heart are not so great as has been supposed.

Some patients it is known have recovered from wounds of the heart as large as three centimeters without any local treatment, and suture of the heart has been performed nine times; four recovered entirely, and four died of complications referable to other organs.

Elsberg summarizes his conclusions thus:

(1) Suture of a heart wound as a final resort may often be found worthy of consideration and justifiable. (2) There is no danger of sudden arrest of the action of the heart while being manipulated, unless Kronecker's coordination center be injured. (3) The suture should be of silk, and interrupted; it should be applied so that the epicardium and superficial layers of the myocardium shall be the only ones penetrated, and tied, when possible, during diastole. (4) Each case must be considered by itself for symptoms which would justify operative interference.

SUBARACHNOID COCAINIZATION IN OBSTETRICS AND GYNECOLOGY.

HAWLEY and TAUSSIG (*Medical Record*, Jan. 19, 1901) report fourteen cases of obstetrical and seven cases of gynecological cocainization.

A full-strength solution of cocaine, sterilized in small bottles at 80° C. for one hour on two successive days, was used with a needle about seven centimeters long kept well sharpened. The ears of the patient were closed with cotton, and the mouth was covered with cloth. A nurse, when the puncture was made, stood at the patient's head to keep the back arched forward, and to prevent the patient from suddenly sitting upright.

On the amount of cocaine injected depended the duration of the anesthesia. When it was boiled the anesthesia lasted thirty-five minutes; under Pasteurization the average duration was one hour and fifty minutes.

In nine cases there was some pain; three of these required a few inhalations of chloroform. In only one of the last ten cases did the operation or labor outlast the anesthesia.

In from two to four minutes, as a rule, all sense of pain was gone. In the gynecological cases the anesthesia was complete before the woman could be put in position for the operation.

The influence of the injection upon the nervous centers increased the knee-jerk in nine cases and lost it in one. Dilatation of the pupils appeared in five cases. Three times the heat and cold sense was absent, but as a rule it was not at all impaired. Tactile sense was fully retained.

The patient's condition was usually unchanged, and in four cases there was some improvement of the pulse.

Twelve of the fourteen obstetrical cases had vomiting, which appeared in only three of the gynecological cases. Headache was found in only three cases, and was neither severe nor lasting. Twelve hours after injection there was a rise of temperature to 101°–102° in most of the cases, especially the obstetrical cases. It was noted in only one of the seven operative cases.

In all the cases, after twenty-four hours, the patient was free from any manifestations of the cocaine.

After injection, the pains during labor were neither as prolonged nor as powerful as before. The injection was usually not given until the cervix was completely dilated, and in primiparæ it was often delayed until the head was on the perineum. In five cases the cocaine seemed to have a toxic effect upon the child. Three times the child was somewhat asphyxiated when born. One child died, but there were symptoms of weakness before injection. There was no postpartum hemorrhage; the bleeding was unusually small. The third stage of labor was for about ten minutes only. The perineal body did not seem, however, to relax as well as under chloroform.

A study of the cases seems to show that spinal anesthesia is not very dangerous, except perhaps to the child *in utero*. Disagreeable symptoms, when produced, are usually transient. Labor is retarded. Anesthesia is produced for a fairly definite period without affecting consciousness or full control of the voluntary muscles.

The use of the lumbar puncture in multiparæ would seem to be less called for than inhalations of chloroform. The results were not encouraging in primiparæ.

The spinal narcosis seemed to be satisfactory when urgency was required in instrumental deliveries, and the patient not of a very nervous temperament. The delivery was facilitated by the patient's aid, and the dangers of retained placenta and postpartum hemorrhage lessened.

The puncture seems to have its greatest field of usefulness in vaginal celiotomy and minor gynecological work.

COMPRESS IN THE ABDOMEN EXTRACTED AFTER SEVEN YEARS.

CHAPUT (*Medical Press and Circular*, Jan. 2, 1901) operated on the wife of a *confrère* two years ago for pyostercoral fistula in the median line. Three laparotomies had been

performed previously. The last one, in 1891, was followed by the fistula. A voluminous tumor constituted by a loop of intestine, like the seat of a neoplasm, was found. It felt like a soft mass with a thin envelope, and the suspicion that there was a foreign body in the intestine proved well founded when a piece of iodoform gauze about twenty inches square was drawn from the opened tumor. The wound was sutured, the fistula closed, and the operation terminated by placing a drain. The patient recovered without difficulty.

Pilate and Michaux, in 1892, reported two similar cases. In one the compress was eliminated by the anus, and Michaux had to resect the intestine in the second case on account of the inflammation caused by the foreign body.

SOLUBLE SILVER AS AN ANTISEPTIC.

CREDÉ (*Medical Press and Circular*, Dec. 26, 1900) addressed the Hufeland Society, Berlin, in December, on soluble silver as an antiseptic.

Credé found that silver could not be used as an ideal antiseptic, and that silver foil was inconvenient. Silver laid on a sterile wound remained; on an infected wound it dissolved and disappeared. Cultures experimented with ceased to grow, and after the passage of a portion of the silver into the nutrient soil, as much as ninety-five per cent of lactate of silver was met with. Lactate of silver, despite its powerful bactericidal properties, was found undesirable in practice, but a solution of soluble nitrate of silver (itrol) 1 in 5000 was used in thousands of surgical cases with the best results, even under the most unfavorable conditions, and without a single injurious effect. Bacteria in the secretions of a wound were destroyed or their further development arrested.

Dressings and catgut impregnated with the salt acted well, and no suppuration took place in the suture tracks.

As regards bactericidal action, animal experiments showed that when the virulence was strong the sterile zone was small, and larger when the virulence was less.

In attempts to apply silver as a general antiseptic, colloidal silver was found to be the best form. It was best employed by inunction, a fifteen-per-cent ointment being the most suitable. The skin was first washed, a hyperemia produced by means of a brush and soap, and then two or three grammes of the ointment was rubbed in. In from three to six hours, in cases of severe infection with threatened abscess, the patient's condition was changed for the better, and the appetite increased the next day. One inunction often sufficed. Threatened suppuration, in cases of inflamed glands, was arrested, and in cases of pyemia the threatened suppurations in various directions passed away. In virulent infections the rubbing required repeating in from six to twelve hours.

Credé believes that if the treatment is begun early enough phlegmons would be avoided, and the same with simple septicemia. A lying-in woman, feverish about the third day, would certainly be cured by energetic inunction. The same holds good of erysipelas. It is useful also in cerebrospinal meningitis, acute rheumatism, and typhoid. A case of pneumonia, given up by physicians, was cured after a second intravenous injection; ten to twenty grammes of a half-per-cent solution was given. Dickerhoff and Sarnter have seen very good results from its use in rheumatism and suppurative processes, and in tertiary syphilis.

MODERN SURGICAL TREATMENT OF EPILEPSY.

CLARK (*Medical Record*, Jan. 12, 1901), in remarks on the surgical treatment of epilepsy, declares, as to tumors producing Jacksonian epilepsy, that but two per cent of them, according to statistics, are ever operable, even for the relief of other possibly more dangerous symptoms. He also summarizes the present status of trephining as follows: (1) Idiopathic epileptics with typical grand-mal seizures should never be trephined. (2) Idiopathics in whom seizures are of the Jacksonian type should be trephined only when infantile cerebral palsies can be excluded, and when the family and personal degeneracy is at a minimum; if operation is determined on in such cases, a very thorough removal of the epileptogenic area should be made, and even then but a fraction of one per cent recover from their epilepsy. (3) Traumatic epileptics may be trephined when the injury is definitely proven and stands in direct causal relation, and has existed not more than two years. The prognosis will then largely rest upon the degree of the neurotic predisposition present. The earlier trephining is resorted to after convulsions begin, the better the prognosis.

Many less so-called traumatic cases, if

these rules are followed, will be trephined, but the result will far exceed four per cent of recoveries. All epileptics trephined for whatever cause must be given postoperative bromide treatment for years.

OPERATIVE MANAGEMENT OF HIP-JOINT DISEASE.

JONAS (*Medical Record*, Jan. 12, 1901) at Minneapolis, in December, read before the Western Surgical and Gynecological Association a paper on the operative management of hip-joint disease, drawing the following conclusions: (1) All affected structures should be removed, and all healthy bone preserved. (2) The greatest amount of healthy bone preservation and the consequent insurance of best possible joint function makes early incision imperative. (3) Insurance of best possible function means, besides early evacuation of intra-articular tuberculous products and diseased structure removal, a thorough disinfection. (4) The most effective disinfectant method is the application of carbolic acid and alcohol. (5) The greatest possible obliquity of the upper end of the bone is required if the retention of the femoral extremity in the cotyloid cavity is continued, This must be done by preserving as much of the neck as possible, but a certain obliquity could be obtained by removal of the trochanter major when a portion of the neck is destroyed or removed. (6) A portable extension brace must be used for a long time to insure permanent usefulness of the hip-joint. (7) If it can be, excision of the femoral head, neck, and trochanter must be avoided.

VALUE OF CATAPHORESIS IN CARIES OF THE TEMPORAL AND OTHER BONES.

WILLIAMS (*St. Paul Medical Journal*, vol. iii, No. 1, 1900) writes that it sometimes happens that necrosis of a bone will occur in a locality which the surgeon does not care to invade with instruments, or it may be that operative interference is refused by the patient, or that for sufficient reason the surgeon may not use the knife, and reports the following case:

Some fifteen years ago H. M. came under the author's care, presenting a chronic otorrhea which had existed since babyhood. An examination revealed a slight discharge from a small mass of granulations below and posteriorly at the junction of the membrana tympani with posterior wall of the auditory canal. This case was seen by him at intervals for a number of years. The patient would be apparently well of his trouble for several months, and would then present himself for treatment. On several occasions he had attacks, during which, for days, he would be almost unable to walk about, or would even be confined to his bed with dizziness and occasional nausea. At such times a thorough removal of the granulation tissue at the mouth of the sinus, at the junction of the membrana tympani and auditory canal, relieved all symptoms; which sinus led, apparently, not backward into the mastoid, but around the annulus toward the middle ear, without actually communicating with that space, inasmuch as there was no appearance of anything abnormal in the middle ear, except that the patient had a chronic aural catarrh of both sides.

Things went on this way for a number of years, until the patient was advised to submit to an operation, with a view to removal of any carious bone; and this he did. The mastoid was found to be exceedingly dense, almost eburnated, and exceedingly vascular; it was so vascular that the operation was much more tedious than such operations usually are. One does not like to use the chisel in such a locality with the excavation in the bone completely filled with blood; and because of this excessive hemorrhage the operation was abandoned at the suggestion of a physician, a relative of the patient, who was assisting. The object of the operation had been, not to open the antrum, since while there was a little sensitiveness over the mastoid region there was no suspicion of purulent accumulation in the bone, but it was desired to do what would now be called a modified Staacke, perhaps, to take away the posterior wall without seriously disturbing the membrana tympani. The effect of the operation was, for a time, most excellent, but after a while the old symptoms returned, and with new complications. The patient presented himself one day with a localized bulging of the upper and posterior segment of the membrana tympani, which to the eye and touch conveyed the impression of solidity. After some days a free incision was made in the membrana tympani over this protrusion, with much relief to the patient, who somewhat extravagantly declared that it was like living in a new world. The knife impinged upon bare bone, and no pus was liberated, nor was there any discharge. The

incision would successively close, and would be reopened, always with great relief to the patient, who had felt oppressed with forebodings. About this time the patient complained of numbness in the extremities, of tingling in the fingers, with a queer sense of obsession, and as if a weight rested on that side of the head corresponding to the diseased ear. Interrogation with the point of a small knife passed through the membrana tympani disclosed a sequestrum which could be moved up and down and sideways, producing a sensation of falling, together with great dizziness.

Incising the membrana tympani freely, the external auditory canal was filled with dilute hydrochloric acid, U. S. P., and by means of a selector the electric force was turned on, using the street current of 110 volts. No milliampere was used, but the force was graduated, not by the resistance but by the sensations of the patient. The patient was able to bear, for a period of thirty minutes, a voltage of 36 to 40, and this directly through the head and arm.

These treatments were continued at intervals for several weeks; at first every day, then every other day, in order to allow the dermatitis to subside. The dermatitis produced by the acid, while it is troublesome, should not be deterrent; indeed, it may be of value by increasing the collateral circulation, and thus favoring a resorptive process. The dermatitis will always be found greatest at the superior level of the acid, and may be largely controlled by anointing the sides only of the external canal with fat. A speculum of horn or rubber, or one made of ol. theobroma, and accurately fitted into the canal, would almost entirely prevent any inflammation of the skin. The membrane of the drum was not inflamed by the acid. The result of this treatment was most gratifying, for under it the necrosed bone actually disappeared. The swelling subsided, and since that time the patient has been entirely free from ear trouble on that side, save always his chronic aural catarrh. The dermatitis rapidly subsided, as did the graver symptoms of cerebral mischief.

The patient was for some time rather nervous and apprehensive; but three years later was a healthy man, stronger than ever before.

Hydrochloric acid has been used by numerous surgeons for this purpose; but authorities agree, so far as is known, that its use has been without good result. The author, however, believes that the most brilliant results may be obtained in certain cases by the use of this acid cataphorically. Since using the method of acid cataphoresis in the case of H. M., he has employed it in two other cases, in which there was probably caries, but in which the dead bone could not be felt. In both these cases the results were most excellent. One was that of a young girl with recurrent abscesses over the ear, following a year after operation for removal of carious ossicles. The other was a case of chronic osteitis of the superior maxillary and nasal bones of the left side. Two operations upon the antrum had not materially relieved the swelling or inflammation of that side of the face, which the girl of fifteen said had existed as long as she could remember. Less than a dozen treatments of ten minutes each, using the dilute hydrochloric acid, about one-half strength, the anode point carried into the antrum of Highmore, produced a wonderful change for the better. So well was the girl that she was sent home after a month apparently entirely cured.

The author in all his experiments has added chloride of sodium to the acid used. The sodium salt will be decomposed by the electric force with the liberation of free chlorine; deep and foul sinuses may be rendered apparently aseptic and entirely free from odor in this way.

NEPHROPEXY.

BAZY (*Annales des Maladies des Organes Génito-Urinaires*, December, 1900) describes his method of performing nephropexy.

A cutaneous incision, extending from the costomuscular angle to within a finger's width of the highest point of the iliac crest, is made, and is deepened through the muscles. The cellulo-fatty capsule of the kidney is split, and the posterior surface of the organ is exposed. Three transverse sutures are then placed—the first about the middle of the posterior surface, the second near the lower pole, and the third between these two. These sutures pass just beneath the fibrous capsule of the kidney, parallel to the surface, and the points of entrance and exit are about an inch apart, while the sutures are separated from each other by about an inch and a quarter. The two ends of the upper suture are passed through the eleventh intercostal space; the ends of the lower sutures are passed through the muscles just beneath the twelfth rib. The kidney is then pushed up and the

sutures are tied. The cellulo-adipose tissue is drawn well up and firmly sutured to the muscular tissue just beneath the twelfth rib, thus forming a sort of hammock upon which the lower extremity of the kidney rests. The incision through the muscles and the skin is then closed.

THE AFTER-RESULTS IN FORTY CONSECUTIVE CASES OF VAGINAL HYSTERECTOMY PERFORMED FOR CANCER OF THE UTERUS.

LEWERS (*Lancet*, No. 4036) states that the forty cases, the after-results of which he reports, include all those on which he had performed vaginal hysterectomy for cancer of the uterus up to the end of April, 1899. Up to the year 1893 he had for the most part treated cases of cancer of the cervix by the supravaginal amputation, and reserved total extirpation of the uterus for cases of primary cancer of the body. Since that time he has become thoroughly convinced that an efficient supravaginal amputation is much more difficult to perform than is the operation of vaginal hysterectomy. Among the forty cases there are fourteen in which the disease has not recurred; in two of these, the malignant nature of the affection has not been proven by examination of specimens. In two cases seven years has elapsed, and the patients are known to be well—both of these cases were examined for primary carcinoma of the body of the uterus; in three cases upwards of five years has elapsed; in two cases upwards of four years; one case upwards of three years; three cases upwards of two years; and one case more than one year. There are therefore eleven cases out of the forty remaining free from recurrence from two to seven years after the operation —that is, 27.5 per cent.

Lewers believes that the high percentage of patients remaining free from recurrence is chiefly due to the careful selection of cases. His practice has been generally to examine the cases carefully under anesthesia, and to operate only when the disease has appeared to be limited to the uterus.

The disease is known to have recurred in eighteen cases; in twelve of them recurrence took place during the first year, in two during the second year, in two during the third year, and in two during the fourth year.

The conclusions that appear to follow from a consideration of the facts in this paper are: (1) That in a certain proportion of cases patients suffering from cancer of the uterus may be relieved by operation for periods of many years — in some cases for so long a time, seven years and upwards, that there seems some probability that the relief may be permanent; (2) that the proportion of cases in which this result can be expected must remain very small so long as patients generally only seek advice at a late stage of the disease; and (3) that consequently the great desideratum is early diagnosis. Improvement in this direction depends to some extent on a better appreciation on the part of women themselves of the early symptoms of the disease, and especially of the significance of bleeding after the menopause, or of bleeding occurring at an earlier time of life between the menstrual periods. Early diagnosis also depends partly on the profession. Especially important is the general recognition of the gravity of the symptom just mentioned. It is equally important also to bear in mind that patients suffering from cancer of the uterus may, and generally do for a relatively long period, look quite well. They may be well nourished, or not infrequently even excessively fat; and as regards the aspect of the face, they may appear to be in perfect health.

PREVENTION AND MANAGEMENT OF INFECTION OF THE BREAST DURING LACTATION.

BACON (*New York Medical Journal*, Jan. 12, 1901) calls attention to the important and necessary distinction between infection of the breast and simple hyperemia or congestion of the breast. Infection of the breast, unlike the more or less painful congestion of the breast attending milk secretion, is generally attended with fever, and is often confounded with simple congestion, but is an entirely distinct process.

What is known as "milk fever" has been proved to be due to genital wound infection, for if there is no infection there is no fever. Hence the term "milk fever" should be abandoned. The consideration of the nature, cause, and the diagnosis of infection of the breast forms a basis for the study of its prophylaxis and treatment.

The infection germs are the staphylococcus pyogenes aureus, the staphylococcus pyogenes albus, and in some cases the streptococcus pyogenes. The first two are always, and the last is frequently, found on the skin and in the ducts of the cutaneous glands, and not only around the nipple, but also in the milk

channels and in the milk drawn from sterilized nipples. It is doubtful if the streptococcus albus found in the milk causes infection, but there is no doubt that the bacteria found in great numbers on unclean nipples are a source of danger. Soiled clothing and the unclean hands of the mother or nurse are common sources of infection, and perhaps one of the most dangerous infecting agents is the head or hand of the child. Severe infection has been noticed in patients whose babies had boils on the body, or sore eyes, the pus from which became smeared over the child's face.

The general presence of an abrasion in the epithelial layer of the nipple in cases of infection, and the direct route from the erosion to the depth of the breast furnished by the lymphatic channels, favor the now generally accepted conclusion that the latter, and not the milk passages, is the route of the breast infection.

Simple congestion of the breast, a disturbing factor during the first days of lactation, is often attended with the tenderness of an infection, but chills, fever, etc., are absent. When these develop all doubt concerning the diagnosis between congestion and infection of the breast must cease.

The diagnosis between genital wound infection and breast infection must be made by a study of the predominant symptoms. The greatest difficulty is experienced when the symptoms of breast infection coincide with pelvic tenderness, distention of the breast, and soreness of the nipples. In such a case the determination may require some delay.

It is important to determine whether the infectious process has resulted in the formation of an abscess. The center of the infection and abscess formation is often quite deep, and determination of fluctuation is difficult; in such cases the proper procedure is diagnostic aspiration with the large hypodermic needle. Diagnostic puncture should be made if fever or local pains continue, in spite of treatment, for several days.

Improvement of the general health, both before and after confinement, is most important in the prevention of breast as well as all other infections.

General precautions are cleansing of the nipple with 75-per-cent alcohol, and covering the nipple with sterilized gauze.

The chances for abrasion of the breast are increased if the nipple is not easy to grasp, if the milk flows slowly, or if the child is nursed long.

A nipple shield should be used to prevent wounding of the nipple, and may be used temporarily or intermittently during the first four weeks of lactation. It should be thoroughly cleansed, after nursing, both inside and outside, by washing with running or boiled water, and then drying it with clean gauze. The use of boric acid solution for this purpose should not be tolerated.

Symptoms of chills and fevers generally indicate a deep infection of the breast, and nursing should then be stopped, the breast supported and put at rest by a proper bandage. If this is done, eighty to ninety per cent of cases will terminate without abscesses.

A double Y bandage, made of strong cotton cloth, consists of a back piece four or five inches wide and fourteen to twenty inches long, with two diverging strips at each end from four to five inches wide and about thirteen inches long. The lower part of the Y's is fastened in front under the breasts with safety-pins, and then the upper part in the same manner. With this bandage the nipple of the sound side may be left free. If a circular bandage is used, with an opening to allow the child to be nursed from the sound side, the nipple and areola will have to be protected by a pad of gauze under the bandage.

To patients having abscesses of the breast, the method of infiltration anesthesia has been of great value; by its use an abscess may be opened without pain, and so may be opened early. A second or third abscess may also be attended to with little trouble and expense. After careful skin disinfection, a few drops of Schleich's solution No. 2, using an aseptic hypodermic syringe, makes the short line of incision anesthetic. The pus, after incision, is washed out with sterilized water, and a few sterile or iodoform threads are introduced for drainage. A strict antiseptic dressing is applied, the breast bandaged very firmly, and in twenty-four hours the drainage is removed. The wound is kept open by irrigation for a day or two longer, when it will generally close of itself.

EXTERNAL DRAINAGE OF LUNG CAVITIES.

WILLS (*Journal of the American Medical Association*, Jan. 5, 1901) describes two cases of operation for external drainage of lung cavities that are unique, (1) because the patients, being tuberculous, had been given up to die; (2) because operation

was consented to; (3) because of behavior under ether, due to impaired respiratory power; (4) because of immediate improvement after operation, as to temperature, pulse, cessation of fever and cough, and cessation of expectoration as soon as drainage was secured; and (5) because of the establishment of a point of least resistance for the discharge of the pus, the purpose of the operation, indirectly.

The first case was unlike the second in history, physical strength, and in other ways. There was direct communication between the abscess cavity and the bronchus; in the second no apparent vent existed. Each patient, however, as a result of septic absorption, was dying, and prompt surgical interference was suggested as the only means of relief. As soon as drainage was secured the septic symptoms ceased.

Until the consolidated area about the abscess cavity ruptured in the direction of the incision of the chest wall in the first case, there was no pus in the pleural space when it was opened. Damming back of the pus was proven by cessation of the cough and expectoration for eight days after the operation, when the patient was nearly choked by a sudden gush of intensely fetid pus upward. Some of it passed at the same time through the chest wall incision, and while it continued there was no cough nor expectoration, thus proving that gravity drainage was effectual. The patient, though exhausted and run down, gained slowly and steadily, and having the best climatic conditions, recovered. He would have died had he remained among tuberculous patients.

The physical condition of the patient in the second case was much less vigorous than that of the first. He is now convalescent, and under medical care; but should he not recover, he would prove the correctness of the theory of treatment. His septic symptoms stopped at once, his temperature fell, he did not cough, was more comfortable, gained weight slowly but steadily, and left the hospital at the end of the eighth week. The patient almost collapsed on the table from the ether, and the operation could not be completed as planned. Exploration with the finger, however, accomplished indirectly what would have been done had the operation been prolonged. Wills does not think that the merit of the operation was detracted from by the fact that the expected was not done nor found. He says: "A half-completed operation is better than a dead patient, and the beneficial results from the half-finished and changed plan of operation are just as satisfactory to the patient if not to the operator. These patients knew exactly what they had to expect — discomfort, suffering, and certain death under the usual let-alone or roundabout medicinal plan of treatment on the one hand, and a slim chance of betterment by the proposed operation on the other. The second patient was being examined in the office when the first came in, looking so robust and well that these men, the one recovered and the other considering the same plan of treatment, were introduced to each other and had many talks before the second consented to operation, and that he did so was only due to the proof of benefit exhibited to him by the other man's recovery and his satisfaction with operative treatment."

PREGNANCY FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES.

MORRIS (*Boston Medical and Surgical Journal*, vol. cxliv, No. 4, 1901) reports the following case:

Mrs. J. A. G. came under his care about May 1, 1898, on account of dysmenorrhea. Vaginal examination revealed a slight laceration of the cervix, and a small amount of discharge from its glands. The uterus was anteverted and fixed, so that it was immovable laterally, but movable to a limited degree anteroposteriorly. The body was moderately tender. On the right of the uterus was apparently a cystic ovary, and a thickened tender tube; on the left there was a thickened tender tube, but the ovary was not felt. There were no bladder symptoms. Hot vaginal douches were ordered, and three weeks later, under ether, the uterus was dilated and curetted, with the hope of improving her condition before opening the abdomen. The operation was followed by marked relief of her symptoms for about two months. On July 18 she entered the Carney Hospital for the abdominal operation.

The abdomen was opened, and numerous adhesions found between the ovaries, tubes, and surrounding parts. A very long appendix was adherent by its tip, and released. The right ovary contained a cyst as large as a hen's egg, and the left ovary a hematoma nearly as large as the cyst. The ovaries and tubes were tied off with silk quite close to the uterus and removed; the abdominal wound was closed with silkworm-gut. The patient made a rapid recovery.

She began to menstruate soon after the operation, and continued to do so regularly and painlessly for about four months. The dyspareunia disappeared, and her sexual appetite became normal. In May, 1899, she consulted the author on account of morning sickness, nausea, cardialgia, and also abdominal enlargement, and was anxious to know whether she had a tumor. An examination showed clearly that she was pregnant. On September 12, 1899, she was delivered, after a natural labor, of a healthy girl. About two or three weeks after confinement her baby died, and soon after that she menstruated, and has continued to do so regularly and normally since.

Among the cases previously published is one by Dr. George J. Engelmann, formerly of St. Louis, now of Boston. In this case pregnancy followed a double ovariotomy in which the right tube was left intact. A microscopic examination made of the specimen later showed that some ovarian tissue had been left.

Regarding supernumerary ovaries Garrigues, quoting Biegel, says: "Supernumerary ovaries have been found twenty-three times in 500 bodies. In a case reported by Winckel there were three ovaries and three ovarian ligaments. Regarding the passage of the ovum into the uterus, a ligature may have dropped off, leaving the stump of the tube open, or there may have been another ostium between the ligature and the uterus. In a case of the author's, operated on seven years ago, there was a Fallopian tube with two ostia, each surrounded by fimbriæ. The condition escaped his notice at the time, and was afterward pointed out to him by Dr. H. R. Fitz.

OPERATIVE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

HAHN (*Deutsche Zeitschrift für Chirurgie*, Bd. 58, Heft 1 u. 2, 1900) alludes to the admirable work done by Fitz in the study of acute hemorrhagic pancreatitis.

If the patient survives the immediate effects of an attack of this kind there is likely to develop suppuration and more or less extensive necrosis of the organ. Especially striking in these cases is the characteristic fat necrosis, not only in the pancreas but in the neighboring organs, or even in intraperitoneal regions remote from the pancreas. Indeed, this fat necrosis has been held to be the cause of the pancreatic disease. It is interesting to note in this relation Simond's case, a man thirty-three years old, who had been shot through the pancreas, and on whom section was performed for the purpose of checking hemorrhage. He died, and the autopsy demonstrated the wounding of the pancreas and extensive fat necrosis of the peritoneum.

Schmidt describes a similar case. This patient, having been crushed and having developed symptoms of acute obstruction, was opened, but without beneficial effect. The autopsy showed a tear passing transversely through the entire pancreas, the duct being completely divided. The fat of the peritoneum was necrotic over a very wide area. There was, moreover, fat necrosis in the mesentery, in the great omentum, and in the wall of the omental bursa, especially in that part lying close to the anterior surface of the pancreas. There was moderate bleeding from the pancreatic wound. This case proved beyond doubt that fat necrosis is due to a pancreatic secretion.

Pure suppurative inflammation of the pancreas very rarely leads to fat necrosis.

Körte, in his analysis of forty-one cases of hemorrhagic pancreatitis, states that they could be attributed, in six, to alcoholism; in seven, to gastric troubles; in two, to previous trauma; in nine, to an enormous deposit of fat. In some cases no cause could be found.

The disease develops most frequently in men between forty and sixty years of age, quite suddenly, beginning with pain in the epigastric region and vomiting. The belly becomes distended and especially tender in the epigastric region; pressure here often occasions hiccoughing. Moreover, there is often experienced in this region slight resistance, and the elasticity may be compared to that of an air pillow. The face is cyanotic and cold, the hands and feet are cold and covered with cold sweat, the pulse frequently runs to 160, the patient is weak and collapsed; and death commonly occurs, while the patient is in this condition, on the third or fourth day. Usually there is constipation, but in some cases diarrhea is noted. The symptoms have been properly compared by Curschmann to those characteristic of cholera. The patients present the appearance of a profound infection or intoxication. The condition is usually mistaken for ileus.

Hahn has seen five cases of hemorrhagic

pancreatitis and has operated upon four of them. The first case was a fat man, fifty-six years old. He was taken suddenly with the characteristic symptoms associated with icterus, and copious, explosive vomiting, bringing up eleven quarts of bile a day. On the fourteenth day of his illness laparotomy was performed, the diagnosis of duodenal occlusion from gall-stone having been formulated. On opening the abdominal walls a large elastic tumor was felt behind the stomach. Exploratory puncture through the gastrocolic ligament resulted negatively. The wound was closed because the patient was too collapsed to permit of proceeding further, and death followed in ten hours. At the autopsy, the lesser omentum was found to be full of gas and a slimy fluid. In the neighborhood of the stomach and the transverse colon there were many areas of fat necrosis. The pancreas was completely necrotic.

The second case, fifty-six years old, had suffered ten years from catarrh of the cæcum. He was taken suddenly ill in the characteristic manner. The distention was particularly noteworthy in the epigastric region. Percussion dulness was normal. He was opened on the third day of the attack, and died the following day. There was extensive fat necrosis of both the pancreas and other parts of the peritoneal cavity.

The third patient was forty-nine years old, a moderate drinker, and a heavy eater. He had suffered for ten years from gall-stones, had been subject to trauma, and suffered from grippe. He was taken with the disease in the characteristic manner, and was opened on the third day of his attack. A considerable quantity of chocolate-brown fluid was evacuated, and many areas of fat necrosis were seen. This patient recovered.

The fourth patient, forty-eight years old, was not operated upon. He died on the fourth day of his attack. The pancreas was completely hemorrhagic and necrotic.

The fifth patient was twenty-three years old. He had been shot with a seven-millimeter revolver. On operation the ball was found to have passed through the left lobe of the liver, to have escaped the stomach, and to have passed through the pancreas. There was extensive retroperitoneal effusion of blood. Fully a quart was evacuated through the abdominal cavity. The wound was thoroughly drained, and the patient recovered.

The author notes the fact that of the twenty-one operative cases collected in literature, all but one died. It is therefore not astonishing that many authors strongly advise conservative treatment, holding that the best results will be obtained by the use of morphine and washing of the stomach and bowels, waiting until secondary suppuration has occurred before taking more radical measures.

Hahn, considering the profoundly shocked condition in which these patients are usually found, advises strongly against extensive operation. He believes a small incision should be made in the midline, just beneath the navel, and if the presence of fat necrosis can be determined, the peritoneal cavity should be drained with iodoform gauze.

A CASE OF VESICAL IMPLANTATION OF THE URETER BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.

REYNOLDS (*Boston Medical and Surgical Journal*, vol. cxliv, No. 4, 1901) examined a woman forty-five years old suffering from ureterovaginal fistula following difficult labor.

The vagina was short and senile, with exceedingly thin walls and vault. The left side of the vault was a mass of tough cicatricial tissue from repeated operations, in the center of which could be seen an orifice, of a caliber not more than No. 4 or 5 French, from which urine leaked intermittently as from a ureter, except when the patient bore down, when it appeared in quantity as though from the bladder. The vagina was dressed with oleate of zinc and iodoform gauze, and two days later it was thought to be in a sufficiently normal condition to warrant an exploration of the fistula. The probe soon showed that in addition to a channel which passed upward and backward and was undoubtedly the ureter, there was another which turned forward toward the bladder, though nothing could be made to pass it.

The patient was etherized, and after failing to pass a catheter into the bladder from the vagina, the bladder was exposed with a Kelly cystoscope, and a fine catheter was easily passed from the ureteral orifice back into the vagina. Another was passed into the ureter through the fistula, after a slight dilatation of the cicatricial opening in the vaginal vault, the two thus entering through the same opening. After an incision through the mucous membrane of the vagina completely surrounding these catheters, th—

author was able to follow the ureter both ways under the guidance of the catheters. The distal end was traced into the bladder wall, after dissecting it for about one-quarter inch. The proximal end was separated from the dense cicatricial tissue in which it lay with the greatest difficulty, for about one-half inch, at continual risk of opening into the peritoneum. Having gained enough to be able to bring the ureter into contact with the bladder wall without tension, it was thought unwise to increase the risk by further dissection. The catheter was then withdrawn, the vesical end of the ureter was dilated by passing a No. 20 French bougie through it, the island of mucous membrane was cut off, thereby separating the two ends of the ureter, the vesical end of the ureter was dilated to No. 15 French by a bougie, a provisional stitch was passed through the renal end, drawn into the bladder through the dilated ureteral orifice, and out through the urethra. Tension on this easily drew the renal end of the ureter into the bladder, inverting the vesical end of the ureter, and thus resulting in the approximation of a considerable extent of raw surface. The ureter was now fastened to the bladder wall by two sutures of fine catgut, and every effort was made to take off tension by firm and extensive coaptation of the surrounding tissues with many catgut sutures. No catheter was inserted, the patient being left to pass water voluntarily. A vaginal douche of weak corrosive solution was given daily; the patient was kept on salol and urotropin, with free use of cream of tartar.

Three weeks later the vesical end of the ureter had become obliterated so that there was no regurgitation from the bladder, but the renal end was still discharging as before into the vaginal vault.

The author again made an incision into the vaginal vault, and readily freed the ureter to the point which he had reached before, but again feared to pursue it further into the cicatricial tissues amid which it lay. He then freed the bladder from the tissues behind it for some little distance above the vaginal cut, made a small incision through the vesical wall, passed a pair of ordinary though rather fine-pointed artery forceps through the urethra into the bladder, and then separating them slightly passed one blade out through the cut in the posterior vesical wall. The free end of the ureter was then threaded upon the projecting blade of the forceps, the forceps closed, and the handles tied. The closing of the forceps carried the ureter very high up upon the bladder wall, and left a very deep vaginal wound, which was sutured together with many layers of running buried sutures. The operation was followed by three days of pyrexia, similar to that which followed the first operation, at the end of which time the urine contained pus, triple phosphates, and casts in abundance. It was passed voluntarily and easily from the start.

Thirteen days after this operation the urine contained a few casts, a little pus, and of course a trace of albumin, but was otherwise essentially normal. The wound was firmly healed. Light traction was made upon the clamp every day in the hope of bringing it away, but without success, until the twentieth day after the operation, when it was opened and immediately came away without effort. Two days after the removal of the clamp a careful endoscopic examination of the bladder was repeated; the ureteral insertion was found to be represented by a minute orifice surrounded by a spot of reddened mucous membrane about the size of a split pea. The rest of the bladder was entirely normal, and except for the high situation it would have been difficult to distinguish the new ureteral orifice from a normal one. A few days later the patient was discharged well.

The chief risk of failure in ureterovesical implantation is always from the slipping away of the ureter, owing to the thinness of its walls, and the consequent difficulty in its secure suture to the bladder. This danger is entirely obviated by the Dudley method of securing the ureter and bladder together by forceps. The presence of the forceps must at the same time direct the stream of urine into the bladder, and in this case, at least, its presence in the bladder caused no discomfort. But it is thought this could hardly be the rule. The high position given to the ureter and the tension upon it, due to the closing of the forceps, also produced a very deep and therefore extensive surface for union between the bladder and vaginal wall. In this case the ureter and kidney had evidently been infected during their long drainage into the vagina, and it is probable that the loss of union after the first operation was due to the infection of the wound by the decomposed urine which succeeded each operation; under these circumstances the case was probably peculiarly well adapted to show the advantages of Dudley's forceps operation.

COCAINE VERSUS EUCAINE IN SPINAL ANESTHESIA.

BAINBRIDGE (*Medical Record*, vol. lviii, No. 24, 1900) remarks that his cases so far have proved more satisfactory when cocaine has been employed. In one patient he had the opportunity of noticing the effects of both cocaine muriate and beta-eucaine hydrochlorate at different operations. The after-effects seemed no greater in one than in the other, and the analgesia was not so uniform or lasting when eucaine was employed. Most of the experimenters with this method of operating are using cocaine, but Lugueu and Kinderdjy are strong advocates of eucaine and are discarding the former in preference to the latter.

No final verdict for or against spinal injection, or what remedy is best to use, can be reached without further experimental evidence. The remote after-effects are yet to be determined.

THE PYREXIA OF SYPHILIS.

BASSETT-SMITH (*The Lancet*, No. 4034, 1900) narrates the case of a man, aged twenty-five years, who had been invalided from the West Indies for fever of an irregular type, and was under treatment for post-influenzal pyrexia, being then very anemic. He returned to duty for six months, but he was again admitted to the hospital in August for malaria. Examination of his blood showed no evidence of this, but it was noticed that there was a relatively great increase of lymphocytes, as distinct from the polymorphonuclear leucocytes (neutrophiles). On a blood-count being made there was seen to be a reduction of the red cells (2,800,000) without nucleated forms, but only a slight total increase of white cells (13,600). This, with the marked anemia, tendency to epistaxis, and slight enlargement of the glands in the groin, led to the diagnosis of early lymphatic leukemia. His temperature was remarkable, varying as much as 7° F. at times between night and morning, but without rigors, and with scarcely any constitutional symptoms. The patient was treated with arsenic, iron, digitalis, etc., for ten weeks, and for a short time with mercury with chalk. Regular examinations of the blood showed the same characters, with an extraordinary abundance of blood-plates, this being beautifully demonstrated by using Louis Jenner's stain. As there was an old history of syphilis he was later put on iodide of potassium and bark, with the result that in three days the temperature fell to normal and never again rose.

This question of treatment is interesting as agreeing with the experience of Dr. T. D. Savill that the iodides give more favorable results than mercury, for though early in the course of the disease this patient was taking the latter remedy, the temperature did not fall to normal. Cabot states that in certain stages of syphilis there is a decrease in the number of red cells and an increase of lymphocytes, as was found in this man, but he does not mention the increase in the blood-plates. The peculiar intermittent fever with such intense oscillations is noticed by Dr. Burney Yeo, and a similar case is reported by Dr. Sidney Phillips, in which the pyrexia lasted for months, resembling tertian ague, but yielded at once to iodide of potassium. It is probable that many cases of indefinite fever so common in the services are of this character.

ACUTE HEMORRHAGIC PANCREATITIS; ITS SURGICAL TREATMENT.

LUND (*Medical and Surgical Reports of the Boston City Hospital*, 1900) submits the following conclusions and remarks on technique:

Milder cases of acute pancreatitis or peripancreatitis recover both with and without operative intervention. Severer cases require operation, which should be performed early, for the following reasons:

1. Because the primary hemorrhage in itself (Flexner) leads to necrosis and disintegration of gland tissue, and the hemorrhage may be stopped and further necrosis, both of fat and gland tissue, prevented by gauze packing and adequate drainage.

2. Because the patient is in far better condition to withstand an operation early in the disease than later when weakened by suppuration in the lesser peritoneal cavity, and necrosis of much fat and gland tissue.

A certain class of cases in which the primary shock is so severe as to render operation out of the question must be excepted from the operative cases.

The mortality from pancreatitis will undoubtedly be high, but there is reason to hope that with early operation, and adequate provision for lumbar drainage, it may be considerably diminished.

As the diagnosis must, in a large percentage of cases, be tentative, the first or explora-

tory incision should be made in the median line above the umbilicus. This incision may, in severe cases, be made with advantage under local anesthesia. On account of the weak condition of most of the patients rapid operating is essential. The gastrohepatic omentum must be traversed to reach the lesser peritoneal cavity. Masses of blood-clot and necrotic fat should be rapidly evacuated. Further hemorrhage may be stopped by gauze packing. It will be generally impracticable to search for bleeding points.

Where the mass of blood-clot or the abscess cavity has extended into the left lumbar region, adequate drainage must be provided by a lumbar incision made on the finger passed into the cavity. This dependent lumbar drainage is probably the most important step of the operation, since in the majority of cases it will probably not be possible to drain successfully through a median incision, as was done by Finney in Thayer's case. In case symptoms at the base of the left pleural cavity point to pocketing of pus above the spleen, the subphrenic space should be drained by resecting the tenth or eleventh rib in the posterior axillary line. The pleural cavity will be opened, but will be probably walled off by adhesions. At any rate, drainage of this pocket is essential, in order to avoid perforation of the diaphragm by the abscess. Drainage of the subdiaphragmatic space above the spleen would probably have saved one patient, in whom the upper part of the pleural cavity was walled off. Careful diagnosis, rapid operating, and careful nursing will be necessary to save these cases, as the proximity of the inflammatory process to the solar plexus, the diaphragm, heart, lungs, stomach, and duodenum, together with the deep situation of the pancreas, all contribute to make its inflammation so dangerous and difficult as to tax to the utmost the art and skill of the surgeon.

THE RESULTS OF OPERATIONS ON VARICOSE VEINS.

BLAKE (*Medical and Surgical Reports of the Boston City Hospital*, 1900) submits the following conclusions:

1. Operation for radical cure of varicose veins by dissection is not successful in every case.

2. To obtain successful results, cases must be selected, and certain conditions avoided, and recommended to palliative treatment.

3. The conditions which will probably militate fatally against satisfactory results are: (*a*) Old age, or an extremely debilitated condition; (*b*) excessive and very extensive varicosity; (*c*) occupations which to an extraordinary degree favor the development of varicose veins.

4. Cases which may be cured by a thorough and careful operation are: (*a*) Local varix, even of marked prominence, particularly if thrombosis has occurred, either in thigh or lower leg; (*b*) extensive varix, limited to a single venous stem; (*c*) varicosities which are a bar to passing civil service, military, or naval examination; (*d*) cases in youth and middle life; (*e*) cases in which the development of the permanent varicosity was at least partially due to more or less removable conditions (flatfoot, garters, etc.).

5. Operation, even if not entirely successful, will usually relieve such complications as thrombosis, hemorrhage, and ulceration.

6. The usual conditions which follow unsuccessful operation are: (*a*) Pain in and around the scar; (*b*) general swelling and tenderness of the leg; (*c*) development of varicosities above or below the operation scar, but not at the site of the operation itself.

7. In all operated cases general systemic treatment as well as local treatment should be prescribed, together with exercise and the avoidance of a continued upright position whenever possible.

8. Cure of symptoms does not necessarily mean the removal of all visible varicosities.

9. Comparison of relative methods of multiple ligation and continuous dissection must be based upon a larger number of cases than are here recorded.

Reviews.

A TREATISE ON SURGERY BY AMERICAN AUTHORS FOR STUDENTS AND PRACTITIONERS. Edited by Roswell Park, A.M., M.D. Condensed Edition, with Revision. Philadelphia and New York: Lea Brothers & Co., 1899.

After a period of literary activity in the domain of surgery conspicuously manifested not only in this but in other countries by the tendency toward the publication of systems in many volumes, it is with a distinct feeling of satisfaction that the somewhat overburdened practitioner notes a return to the older, and for him better, method of condensing the knowledge which has been ac-

quired in this branch of medicine in a single volume of some 1200 odd pages. For it is undoubtedly true that the greater elaboration which a system allows is useful chiefly to the specialist and to the writer. The essential points of pathology, diagnosis, prognosis, and treatment can be thoroughly covered in a space not greater than that which Park has taken in his admirable work; notable, first, from the number of distinguished men who have contributed special articles. Among these can be named Belfield, Bull, Dennis, Gerster, Hare, Kelsey, Lovett, Matas, Nancrede, Ransohoff, Richardson, and Souchon, with others of equally high standing in the profession.

Surgical Pathology, including Surgical Fevers and Infections, and Surgical Diseases Common to Man and the Domestic Animals, is contributed by Park. This large subject is covered in 128 pages more thoroughly and practically than in triple the space devoted to it in many other books.

Fordyce writes a chapter on syphilis, which is well illustrated. He believes that syphilis in healthy individuals in early adult life is in the majority of cases a benign infliction, often disappearing without treatment, and producing little if any impairment of the general health.

Gonorrhea and its sequelæ are treated by Belfield. For anterior urethritis, he prefers pure santal oil. The internal medication consists of calomel in quarter-grain doses, three to six times a day for one or two days. For the next six days a half-teaspoonful of potassium bitartrate and five grains of sodium phosphate in a glass of hot water is given night and morning, after which the calomel may be repeated. Twenty minims of good santal oil or a teaspoonful of fresh cubebs may be given from four to eight times daily as the stomach permits. Of all local remedies, hot water holds the first place, and cannot be used too often. It should be applied to both the exterior and the interior of the penis. After syringing the urethra with hot water, either a saturated solution of hydrastin muriate or of zinc permanganate, one grain to eight ounces of water, is used. These injections should be made from six to ten times per day. When the acute symptoms subside, a zinc chloride solution, one-half grain to six ounces, is substituted for the permanganate.

It is interesting to note that Park advises morphine subcutaneously in the restless type of shock

Part 4 of this book is devoted to injury and repair, and is contributed by Nancrede, who writes in his characteristic lucid and direct style.

Under the general heading in Part 5 are found such subjects as cysts and tumors, surgical diseases of the skin, burns, scalds, and frost-bites, injuries and diseases of the joints and joint structures, fractures, and dislocations.

Part 6 is devoted to special or regional surgery, and includes hernia, diseases of the rectum and sigmoid flexure, and genito-urinary surgery, together with many other chapters.

Bull writes concerning the surgical diseases and injuries of the eye and orbit, and on skiagraphy or the application of Roentgen rays to surgery.

Considering the fact that this work is profusely illustrated, printed for the most part in large type, and covers the entire ground of surgery, even including the surgical diseases and injuries of the female reproductive organs, the work of condensation has been accomplished with remarkable skill. The book is likely to prove of great value to the surgeon, to the general practitioner, and to the student of medicine.

MEDICO-SURGICAL ASPECTS OF THE SPANISH-AMERICAN WAR. By Nicholas Senn, M.D., Chicago. American Medical Association Press, 1900.

This extremely interesting book is to be regarded rather as the expression of personal impressions and opinions than as a complete medical and surgical history of the Spanish-American war. It does not lack in its humorous side, as, for instance, the picture of Company B, Seventh Regiment, Illinois Volunteers, after the medical examination, in a costume which would be deemed adequate only among the least civilized peoples.

The book opens with a description of Camp Tanner and of the Illinois army, the distinguished author not neglecting to pay a fitting tribute to the personal grace and sympathetic heart of Mrs. Tanner. The details of examination are briefly described, and some comments are made on the camp diseases. The scene shifts to Chickamauga, the routine camp-life of which is graphically described; thence to the hospital ship *Relief;* and thence to Cuba, with the difficult landing and the inadequate transportation. The scenes after the battle of Santiago are lightly touched upon; and there follows some comments on the wounded.

Senn holds, what practically the experience

of all military surgeons teaches, that the fate of the wounded rests in the hands of the person who applies the first dressing. He notes that four laparatomies for penetrating gunshot wounds of the abdomen were performed at the First Division hospital, the only ones to his knowledge during the Cuban campaign; these patients died.

The invasion of Porto Rico is treated from a medical standpoint. The question of typhoid fever, as it came up for consideration in this campaign, is discussed at length. Senn makes a successful defense of the Medical Department, and accords a well-earned tribute to the relief societies. Considerable space is devoted to the surgery at Camp Wyckoff. There is a section of the book devoted to the qualifications and duties of a military surgeon. Among the titles which strike the eye as unusual may be mentioned "Esculapius on the Field of Battle," "A Thunder-storm before Santiago de Cuba," "The Humane Side of Warfare," and "A Midnight Adventure during the Spanish-American War."

Senn has given us an enjoyable description of what he has seen, and some clearly drawn conclusions derived therefrom. The book is thoroughly readable.

URINARY DIAGNOSIS AND TREATMENT. By John W. Wainwright, M.D.
Chicago: G. P. Engelhard & Co., 1901.

This is a small octavo of a little over 100 pages, and deals with the subjects named in the title. The larger part of it is taken up with analysis, and comparatively little is devoted to therapeutics, save that some of the final pages contain prescriptions for various conditions. The book closes with a series of plates which are much better than those commonly found in small books upon urinary analysis.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS; OR THE ACTION OF DRUGS IN HEALTH AND DISEASE. By Arthur R. Cushny, M.A., M.D. Second Edition, Revised and Enlarged. Illustrated.
Philadelphia and New York: Lea Brothers & Co., 1901.

Eighteen months ago the first edition of Dr. Cushny's valuable work upon Pharmacology made its appearance. At that time we called attention to the scope of the work, and criticized some of the classifications of drugs which we thought artificial. But over and above these criticisms we took pleasure in emphasizing the fact that it was destined to prove a standard work, and that while it did not contain as much material for the busy practitioner as some other books, it was nevertheless a most excellent one to be put into the hands of students in order to give them a broad grasp of scientific pharmacology and therapeutics. It is hardly necessary for us to point out that the second edition of Dr. Cushny's book is better than the first. He has been able to correct errors which always creep into first editions, and to bring up the text to a more recent date. For this reason we commend it even more heartily than before, for it is a credit to him and the profession he represents, and lifts the use of drugs from the valley of empiricism to the heights of rational therapeutics.

DISEASES OF THE HEART: THEIR DIAGNOSIS AND TREATMENT. By Albert Abrams, A.M., M.D.
Chicago: G. P. Engelhard & Co., 1901.

Physicians who read medical journals constantly must have already become familiar with the name of Dr. Abrams, who has for many years made a number of original contributions of value to the pathology, diagnosis, and treatment of cardiac diseases. The present little octavo of about 150 pages deals in eight chapters with various cardiac diseases. After an introduction to diseases of the heart, it proceeds to diagnosis and then to the general treatment of these affections; then on to affections of the pericardium, endocarditis and valvular diseases, cardiac neuroses, arterial diseases; and finally there is an addendum in which is given a certain amount of statistical information or summary of the various conditions of the blood.

PHYSICAL DIAGNOSIS IN OBSTETRICS. By Edward A. Ayers, M.D. Illustrated.
New York: E. B. Treat & Co., 1901.

This book is intended as a guide in antepartum, partum, and postpartum examinations for the use of physicians and undergraduates, and contains ten chapters which are devoted to the subjects which we have enumerated, and in addition a very large number of illustrations, many of which are photogravures, and all of which seem to us to be unusually good in that they illustrate the text. The book is to the ordinary workers upon obstetrics what a book on physical diagnosis is to one upon the practice of medicine; and it is more than its title indicates, for from time to time we find through its pages directions as to the methods which should be employed for the relief of various obstetrical conditions. We wish to cordially commend it to our readers, as we feel that it would be a very distinct aid to them in obstetric practice.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

Since my last letter the whole nation has been thrown into mourning by the death of Queen Victoria. The final scene has come somewhat as a shock to most of us, who have been quite unacquainted with the anxiety for her condition for some twelve months past. Dyspeptic and other transitory symptoms had warned her physicians long since that all was not well within, though it was impossible to decipher any bodily disease. A few days before the short final illness transient but recurrent symptoms of apathy and somnolence with aphasic indications and increasing feebleness gave great uneasiness to her physicians; from that time onward the cerebral exhaustion steadily progressed, and the aphasia and slight facial paresis that had appeared became permanent. Slowly but steadily life ebbed out, and the best of sovereigns passed to her rest.

I have avoided sending any account of the epidemic of arsenical poisoning in the north of England and in the Midlands until the evidence was complete. We have recently been fortunate enough to hear an admirable exposition of the facts from Dr. Septimus Reynolds, of Manchester, who has played a principal part in tracing the epidemic to its source in beer, and as the matter is one of universal importance I will endeavor to give an outline. The first feature to attract attention was the occurrence of an unusual number of cases of indefinite skin eruptions, such as erythema, keratosis, and pigmentation, particularly among pauper patients. Incidentally we may remark that the observation throws a strong light on one of the chief determining causes of pauperism. A few months later about six patients presented themselves in as many days suffering from typical erythromelalgia, not only of the feet but of the hands as well, while cases of herpes zoster became remarkably frequent. Subsequently a succession of cases of so-called "alcoholic paralysis" applied for admission to the Workhouse Infirmary. It is difficult to fall in with Dr. Reynolds's disbelief of the dependence of any case of "alcoholic neuritis" on ethyl alcohol, for there are certainly many cases of the disorder in a typical form that cannot be traced either to arsenic or to beriberi, and in which there is an unmistakable antecedent history of spirit drinking. Here, however, we come to a conflict of fact, as Dr. Reynolds asserts that he has never seen a case except among beer-drinkers. His next observation was that the skin eruptions and the neuritis occurred in the same subjects, and here was the key to the discovery, for arsenic is the only drug known to produce herpes. Thereupon the beer was tested for arsenic by Reinsch's test, and well marked crystals of arsenious oxide were found.

Meantime Professor Delépine had succeeded in tracing the arsenic to certain sugars used in brewing. These were invert sugar, made by the action of sulphuric acid on cane-sugar, and glucose, made by the action of sulphuric acid on various forms of starch. Large quantities of arsenic were found in the sulphuric acid, which is made from a highly arsenical Spanish pyrites. The quantitative analyses of Professor Delépine were given by Dr. Reynolds as follows, the arsenic being estimated as arsenious oxide: Various beers were found to contain from two to over four parts per million — that is, from 0.14 to 0.3 grain per gallon. The invert sugar contained 0.25 part per 1000, the glucose 0 8 per 1000, and the sulphuric acid no less than 1.4 per cent, or four ounces per gallon. As Dr. Buzzard pointed out, on the average of the samples of beer investigated, a patient would take a quantity of arsenic equivalent to about two-thirds of a minim of Fowler's solution to a glass, and a moderate drinker would only take a very small proportion of the amount of arsenic given to an epileptic patient. This would suggest either a special tolerance to arsenic in combination with bromides, or a special intolerance to arsenic in combination with alcohol, or some casual susceptibility of the individuals to arsenic in any form. The latter condition is of course not unfamiliar, but at a much higher dosage than that named.

Arsenic may also get into beer from other sources. Thus it is contained in hops treated with sulphur; in samples of malt, finding its way there either from sulphur or from anthracite coal; also in the vulcanite tubes used for conveying the beer to the pumps; while sulphuric acid is occasionally used, and calcium bisulphate both in "fining" the beers and in cleansing the barrels.

It is impossible to estimate the extent of the present epidemic, but at the lowest cal-

culation 2000 cases are known to have occurred in Manchester alone. The clinical picture derived from so extensive a series of cases is well worth a careful study. It will perhaps be more readily appreciated if at the outset we summarize the main conclusions. Arsenic is a cumulative poison that affects both the skin and the respiratory and digestive mucous membranes, the sensory and motor nerve trunks, the voluntary muscles and cardiac muscle, and the liver. Reynolds corroborates Brouardel's statement as to the sequence of symptoms; they are: (1) digestive symptoms; (2) laryngeal catarrh, bronchitis, and acute skin symptoms; (3) disturbances of sensibility; and (4) motor paralysis (and pigmentation and keratosis). The cases fall roughly into four groups: (1) Those with all symptoms fairly well marked; (2) those with skin lesions principally; (3) those with cardiac and hepatic lesions principally; (4) those with paralytic lesions principally. The course of the disease is slow; the digestive and bronchial catarrh pass off first, then the acute skin lesions that give place to chronic. The sensory symptoms may last for months, and the motor symptoms even up to two years. In fatal cases death is usually due to heart failure, either sudden or gradual. The aspect of the patients is in many cases sufficiently typical to suggest the true diagnosis. The face is puffy, especially about the eyelids; the eyes are watery, and in some cases there is even subconjunctival edema, while the vessels are congested even to the degree of hemorrhage. The color of the face varies from crimson to dusky-red or even coppery. At first the patient, like Agag, "walks delicately," as though his soles were sore; in later stages there is the typical steppage-gait. The voice is often husky. The skin lesions are often multiple, and invariably present in some degree. Erythromelalgia is perhaps the most constant; in the feet the soles were crimson-colored, not as a rule uniformly, but chiefly at the parts where the sole comes in contact with the ground. A similar condition is found in the hands, most marked on the thenar and hypothenar eminences, and on the palmar surfaces of the terminal phalanges, the center of the palm being normal in color; the soles and palms are more or less bedewed with perspiration. They are tingling, burning hot, and painful, so that the patient bares them for the sake of coolness, and cannot abide even the pressure of the bedclothes.

This erythema does not become pigmented, but passes on to keratosis; this is a very slow and stubborn process. It may occur in the form of a few isolated patches; sometimes these patches appear on the dorsum of the hand, between the webs of the fingers, and on the knuckles, or the whole palm or sole may be thickly covered with large grayish scales, which are being constantly shed. The soles are almost always worse than the palms. Keratosis in the absence of pigmentation is often a valuable feature in the diagnosis from alcoholic neuritis. Other erythemata occur, of varied character and often very irritating; scarlatiniform and morbilliform rashes may be seen on the trunk and limbs, and not infrequently an acute urticaria. Vesicular eruptions in which the lesions vary in size from a pin's head to large bullæ several inches in diameter are a late form of rash, and may come on as much as six weeks after the last glass of beer has been taken.

Pigmentation does not generally occur in light-complexioned patients, or merely amounts to a darkening of preexisting freckles; in dark subjects it is invariably found. It usually follows slowly upon the erythematous blush by a slow process of transformation from red to bronze or even black. It spares, however, the palms and soles, even though universal elsewhere; nor as a rule does it touch old scars in which the corium has been destroyed, but is peculiarly intense around the edges. Where pigment is normally marked, and at sites of pressure, pigmentation as in Addison's disease is marked; the buccal mucous membrane is not affected. On the whole pigmentation is more marked on the trunk than the face; sometimes on close examination it is seen to be punctiform. Besides this uniform pigmentation, there is sometimes a patchy distribution with intervening portions of lighter skin; these isolated patches may, however, coalesce so as ultimately to produce a uniform and universal pigmentation. After many weeks the pigmented skin may undergo a branny desquamation, when if the pigmented flakes be rubbed off a healthy skin is left underneath. This sequence of events strongly suggests that the pigmentation is a cutaneous dystrophy and not a deposit of arsenic in the skin.

Herpes occurred in a small number of cases, and most commonly in the distribution of the cervical or dorsal nerves. It was never bilateral, and in no single case was seen below the knee or below the elbow. Dr. Reynolds considers that it is due to

direct action of the arsenic on the posterior spinal ganglia, and fancies that the epidemics of so-called specific herpes are really referable to arsenic. This view concords with the habitual neuralgic pain that precedes the eruption of herpes. The nails often bear evidence of malnutrition in the presence of transverse white ridges; proximal to these the nail is normal, but beyond them white, cracked, and thin, so as to be almost papery.

In the nervous system, sensory affections have been present in practically all the cases; in the mildest mere paresthesia of the distal parts of the limbs, with tingling and numbness, but never total loss of sensation; neuralgic pains were common. In only one case was a cranial nerve affected, viz., the sensory portion of the fifth nerve. The muscle masses of the legs and arms were usually intensely painful on pressure. On the motor side the symptoms were akin to those of alcoholic paralysis, and were present in as many as seventy per cent of all cases. In mild cases slight weakness of hands and feet without muscular atrophy, and in severe cases total paralysis of the affected muscles with marked atrophy; in less severe cases the small distal muscles only, while in severe cases even the muscles of the upper arm and thigh were extensively affected. Frequently the muscles on the front of the trunk were weak, so that the patients could not raise themselves in bed, and in some severe cases there was diaphragmatic paralysis, with labored breathing and a markedly ineffective power to cough. Only in the most advanced cases was there any paralysis of the sphincters.

Mental disturbances were not a prominent feature; in some very severe cases there was, as in alcoholic paralysis, a complete loss of memory of time and of place. There was also a loss of initiation of ideas, so that the patient grasped greedily at any suggestion from another. This comparative mildness of mental symptoms would in cases otherwise severe give an important clue in diagnosis from alcoholic paralysis.

In the circulatory system weakness of the heart muscle producing various grades of disturbance and dilatation was most noticeable; this may be assigned to the arsenic quite independently of the alcohol. Edema affecting the feet, or in some cases the whole body, was commonly found. Ascites was sometimes present in fair amount, but pericardial and pleural effusions, when present, were usually less than occur in beriberi. Heart failure was the commonest cause of death.

In the respiratory system generalized catarrh is the rule: thus the husky voice is due to congestion and not to paralysis of the cords; the degree of congestion was occasionally enough to produce hemoptysis. In some of the cases there was evidence to show that in these toxic doses preexisting phthisis was intensified by arsenic.

Digestive symptoms in many cases ushered in the other troubles. In mild cases the appetite was sometimes definitely increased, while in severe cases loss of appetite and vomiting immediately after taking food were the rule. In early stages the tongue had a silvery film like a wash of lunar caustic, but in later stages was brown, but still moist; sometimes the gums were red and softened. There was at least a suspicion that the arsenic in some cases had induced hepatic cirrhosis. Arsenic was detected in some cases in the urine. Elevation of temperature, more commonly in the early stages, with catarrhal symptoms, has sometimes suggested a diagnosis of influenza.

Treatment, beyond stopping the intake of the poison, is mainly directed to counteracting complications. The tendency to heart failure precludes the employment of any depressing remedies, and digitalis and strychnine are for the same reason indicated. Pain is sometimes sufficient to call for morphine, and the burning sensation of the extremities may be relieved by spirit lotion. The neuritis is treated by the usual routine methods.

Dr. Brownlie speaks highly of ichthyol in erythema nodosum, in the following form:

℞ Ichthyol ammon., ʒ ij;
Sp. vini rect.,
Ætheris, ää ʒ iij.
Ft. mistura. Signa: "The Paint."

The spirit and ether are first mixed together and then the ichthyol added, else an insoluble deposit is formed. The application speedily relieves the burning pain. I can personally testify to the efficacy of an almost identical paint consisting of a drachm of ichthyol in an ounce of collodion.

AMMONIUM CHLORIDE BY INHALATION.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: On looking through some of the back numbers of the THERAPEUTIC GAZETTE, on page 156 of the March, 1900, number, a paper by James Ballard, M.D., on the use of nascent ammonium chloride in the

treatment of phthisis caught my eye. The remedy, I need hardly say, is an old one, and properly used is a very valuable one, particularly in chronic bronchitis, and I am glad that Dr. Ballard has in the pages of your widely circulated journal called to it the attention of whom it may concern.

But the method as applied by him is open to criticism. As he does it, the presence of common salt is useless; the free hydrochloric acid needed to combine with the ammonia being wholly furnished by the added acid. If he would decompose the salt with sulphuric acid he would find an amount of free hydrochloric acid, and a consequent supply of the nascent chloride, that would surprise him.

Some twenty-five or twenty-six years ago, during some laboratory work, it became necessary to add ammonia in excess to several beakers containing a certain solution in hydrochloric acid, and as often happens in badly ventilated rooms, the laboratory was soon filled with the nascent salt in question. It occurred to me that that would be a much better way of exhibiting it therapeutically than the inhalers in common use, and not long after I suggested to a medical friend, who had a bad case of chronic bronchitis on his hands at the time, to make use of this nascent salt by filling the patient's room with it and requiring him to live in it, and thus to inhale it morning, noon, and night until relieved. It was managed in this way: In a soup plate was poured, by guess, three or four ounces of strong sulphuric acid, and into a saucer (used to distinguish it from the acid container) was poured about two ounces of the strong ammonia, and immediately there was sprinkled upon the acid about a tablespoonful of common salt. In less than a minute the room was full of a dense cloud of the nascent salt, which was kept up for days by needed renewals of the charge. The patient made a rapid and permanent cure. This was a beginning. I explained the process to a large number of physicians, and it has been in use here ever since, and the results attained have been surprising. During the twenty-five years that have elapsed since the first cure was made, I have received from doctors and laymen hundreds of letters—some asking for written instructions, others to thank me for this mode of utilizing this very valuable drug.

Results beyond my expectation had been reached by its use in other directions.

One well known doctor always uses it in asthma, with great benefit to the patient, in the majority of cases. Another, a couple of years ago, told me that he had used nothing else in whooping-cough for more than twenty years, and invariably with success. Not long ago, calling on one of my oldest professional friends, he said he wanted to tell me a story; it was as follows: "Fourteen or more years ago I was called to see a very sick young man, the only son of his widowed mother. On going to his room my olfactory nerves were greeted with the foulest stench they ever encountered. I found it came from his sputum. An examination of his lungs (which revealed a cavity in one of them) concluded, I hastened from the room, followed by his weeping mother. Feeling sure that the patient's end could not be far off, my first impulse was to so inform his mother, but her imploring look and urgent entreaty to do something for her son led me to reflect that by giving her something to do I might at least give her some relief from her great anxiety for a short time. So I went to a drug store, bought the necessary acid and ammonia, returned to the house, and instructed the poor woman how to manage the 'fumes' as it is called. About a week after I called to see how the patient was getting on. To my surprise I found a great change in the character of the sputum, and among other changes for the better, it was odorless. In a few weeks the patient was up and dressed when I called, and not long after he was working at his trade again, practically well. Now I want to show you a photograph of my patient as he is to-day." It was a picture of a second Sandow, now a professional base-ball player.

When we consider that the nascent ammonium chloride is in a state of almost infinite division, it must be clear that the amount of the salt inhaled from an inhaler, as generally used, could only be successfully weighed upon a delicate balance, and it is not at all surprising that the inhaler is seldom heard of now. But where the inspirations are carried on for hours, days, and in bad cases for weeks at a time, the case is different and success certain—in chronic bronchitis and in colds after the acute stage has passed.

Very sincerely yours,

M. M. MEW.

LABORATORY OF THE ARMY MEDICAL MUSEUM, WASHINGTON, D. C.

—THE—

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Original Communications.

PUERPERAL MASTITIS: ITS PREVENTION AND TREATMENT.

BY EDWARD P. DAVIS, A.M., M.D.,
Professor of Obstetrics in the Jefferson Medical College; Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Visiting Obstetrician to the Jefferson, Philadelphia, and Polyclinic Hospitals, etc.

The most usual cause of puerperal mastitis is infection. Attention has long been drawn to the dangers which accompany cracks and fissures of the nipple and septic infection in the puerperal woman. We have not, however, been familiar with the fact that many non-parturient women have inflammation of the breast, and that in some cases pus-forming germs are present in the breast before the child is nursed.

The mammary gland is one whose circulation is easily altered, and in which infection finds a fruitful soil. Many patients suffer from swelling and pain in the breasts at the menstrual period. This is well illustrated in the following case: A married woman, not pregnant, consulted the writer for a lump in the right breast which gave her much anxiety. On examination, a hard tumor the size of a small egg was found in the right lower quadrant. The tumor was slightly sensitive; the nipple

was not retracted; the axillary glands were not involved. Upon close questioning, the patient stated that she first noticed this enlargement during the menstrual period which had just closed, and that before menstruation she had been much occupied with the packing of trunks, and had used her right arm to excess. The patient was given some simple medicine to engage her attention, the digestive tract was freely emptied by laxatives, and she was asked to report in ten days. She did so, when the tumor could not be felt. She has not reported since for this condition, although she has received advice for other illness.

Tubercular infection of the female breast may be properly suspected in cases of chronic tumor with a serous discharge, in a patient of tubercular tendencies and in whom the tumor grows slowly but steadily. Should pregnancy occur in such a patient, the tumor would rapidly increase and a mixed infection with pus formation very probably occur. The following case is illustrative of this point: A young woman was admitted to the Jefferson Maternity for confinement. Upon examining the breasts, the right was found to be slightly hardened in several areas and watery fluid exuded from the nipple. The patient stated that this hardness had been present for several months and that it was increasing in size. Some of the fluid was extracted by the breast pump and subjected to examination, when tubercle bacilli were found. As the patient was near term, she was allowed to go through her confinement. She did not nurse the child from that breast, but from the other, which showed no signs of disease. When she was convalescent, the entire breast was removed, the axilla not being infected. An examination of the gland showed the lesions characteristic of tuberculosis. The patient was kept under observation for a month after the birth of her child, no further evidences of tubercular disease appearing.

Suppurative inflammation of the breast may be feared in patients who have had inflammation in the breast at any time before becoming pregnant. Puerperal mastitis tends to recur with each confinement. A traumatic lesion of the mammary gland also predisposes to puerperal mastitis.

In undertaking investigations a few years ago regarding the sources of infection to which new-born children are exposed, the writer observed that in some cases milk taken from the breast of the mother before the child had nursed contained staphylococci. In these cases no previous pregnancy had occurred, there was no history of traumatism, and no adequate explanation of the presence of these germs within the breast. They were undoubtedly the result of a previous inflammation, or were possibly conveyed from a focus in another portion of the body, having been transmitted by the blood current.*

Infected cracks or fissures in the nipple remain by far the most frequent sources of puerperal mastitis. Much can be done to obviate this complication if the patient be examined comparatively early in pregnancy and the nipples be drawn out and the epithelia healed by suitable antiseptic ointments. The application of hardening agents to the nipple is distinctly injurious, as it strongly encourages the tendency to cracks and fissures. Lanolin and boracic acid ten grains to the ounce, subnitrate of bismuth and castor oil in the same strength, cocoa butter and boracic acid, or sterile olive oil, are all excellent for this purpose. The breast and nipple should be washed with Castile soap and warm water, the nipple drawn out by the thumb and finger, and the ointment thoroughly but gently applied. If the nipple cannot be thoroughly drawn out by the thumb and finger, it may be necessary to use the breast pump, applying it very gently. Few cases are seen in which the nipple cannot be suitably prepared by these measures.

When cracks or fissures are present, immediate precautions must be taken to prevent infection. The patient should wear a breast bandage, and the nipples be covered by a small square of sterile gauze. Before and after nursing the child's mouth should be cleansed with a saturated solution of boracic acid, and the nipples should also be thoroughly cleansed with the same agent. When the child nurses, a sterile nipple shield should be put over the nipple for its protection. A borated ointment should be applied to the nipple after the child has nursed and the nipple has been cleansed to promote healing. Where the crack is so severe that the nipple bleeds, a few applications of glycerole of tannin usually control the bleeding. Very rarely the fissure must be touched by a weak solution of nitrate of silver.

It is of great importance in preventing suppuration that stasis of milk or engorgement of the breast does not occur. The breast

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* *Archives of Pediatrics.*

must drain in order to relieve the pressure of milk, and also to give exit to milk which may contain staphylococci. Accordingly an important part of the treatment for the prevention of mastitis consists in the proper drainage of the breasts. This may be effected by massage, the use of the breast pump, the employment of a properly fitting bandage, and by utilizing the nursing of the child. In some cases the engorgement is so great that the child nurses with difficulty. With these patients it is best to massage the breasts thoroughly before the child is to nurse, then to apply the breast pump until the milk flows freely, and then to allow the child to nurse. In cases where the breasts are extremely hard, hot applications should precede massage. These may be of two sorts—a hot wet application or fomentation, or the use of a bag containing hot water giving dry heat. If the fomentation is employed, it should be of the softest flannel, which has been boiled, and which should be wrung out of boiled water with clean hands.

To obtain success in relieving engorged breasts, almost constant attention is necessary. The sequence of treatment is also important and should be as follows: In obstinate cases, first the application of warmth; then massage with warm sterile olive oil; then the application of the breast pump, removing from two drachms to an ounce of milk; and then the nursing of the child. If this sequence be observed, there are few cases which will not be promptly relieved.

To preserve the nipples in an aseptic condition, boracic acid is the most available antiseptic. This may be used in solution applied upon small pieces of boiled soft linen retained in position by a square of sterile gauze and a breast bandage. In some cases a dusting powder after the nipple has been cleansed is beneficial, and aristol often serves a useful purpose. Boracic acid may be used in ointment in fissures and cracks of the nipple to advantage. In some cases the child objects to the taste of an ointment, and sterile olive oil may be used instead. In cases where the child dies and the secretion of milk must be checked as soon as possible, care must be taken to relieve the breasts of engorgement and to drain away a portion of the milk secreted. The treatment just described answers well in these cases, with the exception of those in which there is a rise of temperature and obstinate distention of the breast, and soreness. Here the application of cold is often followed by very happy results. A tight ice-bag is laid upon the breast most painful, protected by flannel. Massage and the use of the breast pump may be added to this treatment with sufficient frequency to relieve engorgement. The diet of the patient should be largely solid, as little liquid as possible being taken, and the bowels should be kept freely open by the use of salines.

While various drugs have a reputation for checking the secretion of milk, we are familiar with none which can be used in sufficient quantity without impairing the patient's digestion and general health. We prefer to rely upon the local treatment described, selected diet, and saline purgation, rather than upon the use of drugs.

Cases are sometimes seen in which the nipple is so malformed or affected by disease that the breast cannot be drained through this channel. In these patients the use of the breast pump is without avail, and the physician must rely upon compression, cold or heat, selected diet, and purgation. Massage is useful to a limited extent if given with great gentleness. The danger of abscess in such a case is considerable, and the physician must be ready to incise promptly and drain an area of infection.

The diagnosis of abscess of the breast is often difficult. Such begins in a small area not large enough to give distinct fluctuation. A breast soft and full of milk gives a fluctuation difficult to distinguish from that of a small abscess. It is better to rely upon the presence of an area of hardness with pain on pressure and rise of temperature than to wait for the development of fluctuation. In some cases the temperature rises rapidly to a considerable height, then falling to normal; in others the rise of temperature is gradual and accompanied by the persistence of a hard and sensitive area. Pain, a hardened area, and elevation of temperature will yield in simple cases to heat or cold, massage, pumping, and saline purgation. The effort should be made to check the disease by this treatment, and usually success will result. If, however, the temperature does not fall, the breast does not soften, the free discharge of milk does not occur, and the area of hardness increases rather than diminishes, the suspicion of infection must be entertained and incision should be practiced.

In some cases a small area of distinct fluctuation is present. The skin over this area in patients not hysterical or highly sensitive

may be partially frozen and a small incision made with a sharp bistoury. The pocket should be washed out with peroxide of hydrogen, and a strip of gauze inserted for drainage. Unless the physician can distinctly limit the fluctuation to a small area, the patient should be anesthetized and the breast thoroughly explored under antiseptic precautions.

To thoroughly explore the breast, the physician requires a scalpel, a grooved director, forceps for carrying gauze or drainage tubing into wounds, scissors, and a small glass piston syringe. The patient should be anesthetized with ether, the parts made antiseptic, and antiseptic precautions observed. The operator should first endeavor to determine the point of most decided fluctuation. He will usually find one small area which can be distinguished from the remainder of the breast; this is usually not far from the nipple. This area is incised sufficiently to permit not only the free exit of pus, but the introduction of the operator's finger. By firm but gentle pressure the operator should endeavor to break down any partitions between the original focus and adjacent foci, and in this way to make one abscess of the surrounding infected tissues. The finger can usually trace the path of infection by the breaking down of the glandular substance, and the breast should be explored from the central focus as thoroughly as possible. It is then washed out with peroxide of hydrogen or lysol one per cent, or sterile salt solution, and the operator decides upon the method of drainage. If but one septic focus be found and that near the center of the breast, it can be drained by a packing of gauze. If, however, the breast is honeycombed, the operator must choose the lowest point or one or more openings for drainage. It is usually best to pass good-sized soft-rubber tubes from the highest to the lowest point of the infected area. These should be thoroughly flushed out and the breast enveloped in a copious antiseptic dressing. At each dressing the tubes should be flushed clean, and so soon as no discharge passes through them they should be removed and the lower openings kept patent by packing with iodoform gauze.

Submammary abscess is sometimes seen in which there is no distinct area of fluctuation in the breast, but the whole gland is raised and carried usually toward the center line. There may be considerable fever and the case may puzzle the observer, because he fails to find fluctuation in the breast. An incision at the lower border of the gland will usually open the abscess.

In neglected cases infection may travel into the axilla, the lymphatic glands of that region suppurate, and axillary abscess may complicate the puerperal condition.

It is sometimes better to err on the side of too early incision than to delay too long. Even though the operator cannot recognize fluctuation, a hardened area which is painful and which resists the treatment described may properly be incised. The result of such incision is good. The hardness disappears and the breast resumes its normal condition.

In making incisions into the breasts, the anatomical arrangement of the milk ducts must be kept in mind, and the incision made parallel with the ducts and not across them.

Shall the milk in an infected breast be entirely discarded in the feeding of the infant? It is undoubtedly safer not to give the child milk from an infected breast. The same germs which produced pus in the breast may infect the intestines. While the breast remains infected, it is best to extract its contents by the pump and not to use the milk in the feeding of the child.

GASTROSTOMY FOR THE RELIEF OF PAINFUL DEGLUTITION INCIDENT TO TUBERCULOUS LARYNGITIS.

By Edward Martin, M.D.,
Professor of Clinical Surgery, University of Pennsylvania.

Gastrostomy, or the formation of an artificial opening into the stomach through which nourishment can be introduced into this viscus, has been practiced when, because of esophageal occlusion intractable to surgical treatment, it has been impossible to feed the patient by the natural route. It has found its chief application in the relief of the inanition attendant upon the obstruction due to cancer and cicatricial contraction of the esophagus.

At the period when the technique of this operation was imperfect, and when the simple opening of the peritoneal cavity was attended by much risk, it is clear that the comparatively limited indications just given could not with justice be widely extended. Now that the operation can be quickly performed, is absolutely efficacious, and is free from risk or inconvenience either immediate or remote, there seems no good reason why it should not be utilized as a means of

relief for the distress consequent upon painful deglutition.

As is well known, tuberculous laryngitis may cause such excessive pain on swallowing that patients perish of inanition rather than subject themselves to frequent repetitions of this torture. The pain, even if rendered bearable by chloretone, orthoform, or cocaine, may still be sufficient to cause a distaste for food, or a disinclination to take it, which militates strongly against the patient's recovery.

It was in such a case that Dr. F. H. Macfarlane, struck by the rapid and progressive emaciation of a boy of nineteen, in whom the tuberculous lesions were most pronounced in the larynx, proposed gastrostomy. He argued that the progress of the tuberculous disease would be best resisted by hypernutrition. He found that this hypernutrition was impossible because of the agony experienced by the patient in the act of swallowing. It was in the hope of being able to feed the boy to the full limit of his stomach capacity that the operation was suggested.

The reasons for this operation seemed so perfectly clear that I had no hesitation in performing it.

Practically the Witzel and the Ssabanajew-Frank methods were the only two to be considered. The Witzel operation is performed by placing a tube upon the stomach wall and infolding it by stitches for two or three inches. The end of this tube is then thrust through a small opening in the stomach, which is closed about the tube by sutures. There is thus formed a two-inch air-tight canal parallel to the wall of the stomach running down to the perforation in this viscus. The stomach is then secured to the parietal opening and the wound is closed.

This operation, though perfectly simple, has seemed to be less sure of preventing leakage than the Ssabanajew-Frank method. In accordance with the latter procedure, two incisions are made—the first along the left costal border. Through this first incision a portion of the stomach wall is drawn. The second incision is then made through the skin an inch or two to the left, and the tip of the gastric pouch, which has been drawn through the peritoneal opening, is pulled beneath the bridge of skin and secured to the borders of the second incision, the first cut being closed. It sometimes happens that, owing to a contracted stomach, this procedure is impracticable.

In this case, however, the operation proved to be extremely simple. An incision was made to the left of the middle line, the stomach was seized with forceps and drawn out until a pouch presented itself of sufficient length to be carried upward over the costal border. A second incision was made above the costal border, the muscles were tunneled, and a vulsellum forceps passed through this second incision seized the pouch and drew it up until its end presented beyond the skin. The abdominal incision was then closed without suturing the stomach to the parietal peritoneum at this point, and the operation was completed by suturing the stomach wall to the skin borders of the upper incision, after which a catheter was introduced into the stomach.

The whole procedure required a very few minutes. There was no shock. The patient recovered from the anesthetic in less than half an hour, experienced no after-pain or inconvenience of any kind. He was very grateful for the relief of the pain incident to swallowing, and complained only of dryness of the throat. Because of his harassing and persistent cough there was more irritation about the skin orifice of the gastric fistula than is usual. When this complication is to be expected it would be better not to draw the gastric pouch over the costal border.

This operation is so easy and safe, and so unlikely to be followed by unpleasant consequences, that it might be employed in cases of cancer of the tongue, throat, or the larynx, or in any of the diseases or operations which make the ingestion of food difficult, painful, or dangerous.

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*THE BLOOD-PRESSURE-RAISING PRINCIPLE OF THE SUPRARENAL GLANDS —A PRELIMINARY REPORT.**

By Dr. Jokichi Takamine,
New York.

Since Addison, in 1855, pointed out that in the disease bearing his name there are certain constant changes in the suprarenal gland, many able investigators have directed their attention to the study of this interesting organ.

The researches of Brown-Sequard, Oliver, Schafer, Pellacani, Foa, Vincent, Cybulski, Bates, Moore, Swain, Cohen, Floersheim, and others, have established beyond doubt the fact that certain constituents of the supra-

* Read before the annual meeting of the New York State Medical Society, January, 1901.

renal gland possess marvelous physiological activity and valuable therapeutic properties.

As the active principle of the gland dissolves readily in water, the aqueous extract of the fresh gland was used with good results; but like all animal extracts, it deteriorates very rapidly, becoming utterly useless and sometimes quite dangerous. The fresh extract, when carefully sterilized, keeps a considerable length of time, but the moment the bottle is opened it is very prone to decompose. Various preservatives have been tried, but very few have proved successful. The desiccated gland is also used, and from it the extract may be made fresh each time it is needed.

The chief objections to the above preparations are the uncertainty of their physiological activity, the presence of a large amount of foreign matter, and their proneness to decomposition. Of late years various attempts to isolate the active principle of the gland have been made by several physiologists and physiological chemists, among whom may be mentioned Prof. J. J. Abel of Johns Hopkins University, Dr. B. Moore of London University, and Dr. O. v. Furth of the Physiological Chemical Institute of Strassburg, all prominent workers in this field. Dr. J. J. Abel published his first paper on this subject in 1897 in the July number of the *Bulletin of the Johns Hopkins Hospital*, and his second paper in 1898 in the September and October numbers of the same publication. In the latter he announced that he had isolated the active principle of the gland, and named it "epinephrin." Shortly afterwards Dr. O. v. Furth reported the results of his investigation of the gland, and made a severe criticism of Abel's "epinephrin," declaring that it is nothing more than an inactive foreign matter contaminated with some of the active principle. Furth claimed to have attained the isolation of the active principle by different methods, and called his product "suprarenin." Abel obtained "epinephrin" by treating, in an autoclave, a benzoyl compound obtained from the gland extract with benzoyl chloride and sodium hydroxide, after the Baumann-Schotten method; while Furth obtained "suprarenin" from the filtrate in which Abel considered "epinephrin" did not exist.

In July, 1899, another paper by Dr. Abel appeared in the *Zeitschrift f. Physiologische Chemie* in which he opposed his opinion to that of O. v. Furth, and gave also a number of results of chemical analyses of "epinephrin." Notwithstanding his effort to solve the question, there is still room for controversy, for he could not obtain "epinephrin" in a chemically pure form. Neither could Furth obtain "suprarenin" in a pure state.

Having been interested in this subject for some time I recently commenced to make research along that line. I am now pleased to announce that I have succeeded in isolating the blood-pressure-raising principle of the gland in a stable and pure crystalline form. Although I will not go into the details of the method of preparation, in this preliminary note, I may state that the method I have employed is entirely different from either of those used by Abel and Furth.

I desire by no means to usurp credit due to the pioneer investigators; yet in view of the facts that neither of the authors quoted has obtained the active principle in pure form, and that there still exists some room for controversy between them, for convenience sake I have termed the blood-pressure-raising principle "adrenalin."

Adrenalin is a light, white, microcrystalline substance, showing itself thus far in five different forms of crystals, which vary according to the condition of the solutions from which they are made. In fact, the crystals can be transformed from one shape to another by different methods of crystallization. The five different forms are: (1) Wart- or tomato-shape; (2) boat- or leaf-shape; (3) rhombic plates and their agglomerations; (4) fine needles; (5) prism-shape.

Adrenalin has a slightly bitter taste and leaves a numbed feeling on the tongue at the spot where it has been applied. When dry it is perfectly stable. On heating, it turns brown at 205° C., and melts, decomposes, and swells, simultaneously, at 207° C. Adrenalin shows a slightly alkaline reaction on moistened litmus paper; phenolphthalein also indicates slight alkalinity. It is with difficulty soluble in cold water, and more readily in hot water. From the hot, saturated, aqueous solution the crystals separate after cooling. The colorless aqueous solution of adrenalin is easily oxidized by contact with the air, its color changing from pink to red, and eventually to brown. Adrenalin is easily soluble in acids or alkalies, but not in ammonium hydroxide or solutions of the alkaline carbonates. The following reactions are most characteristic. The addition of ferric chloride to a solution of adrenalin produces a beautiful emerald green color, which by careful addition of caustic

alkali becomes purple, and then carmine red. Strong acid prevents the reaction with ferric chloride, limiting the change of color to a dirty yellowish-green. It reduces silver salts and gold chloride very energetically, and besides, turns the liquid red. Oxidizing agents, such as ferricyanide and bichromate, behave in the same way. None of the following alkaloidal reagents produces a precipitation: mercuric potassium iodide; picric acid; tannic acid; phosphomolybdic acid; phosphotungstic acid; mercuric chloride; potassium bichromate; platinum chloride.

Adrenalin is very soluble in acids, and forms salts which are crystallizable with difficulty. I made three kinds of salts—hydrochlorates, sulphates, and benzoates—by carefully dissolving adrenalin with the three different acids, and evaporating, *in vacuo*, over strong sulphuric acid. In course of time the residues became brown, brittle, amorphous masses, deliquescent in the air. So far my efforts to crystallize them have failed.

The alkalinity of adrenalin is approximately as follows:

100 parts adrenalin=27.38 parts H_2SO_4.

Adrenalin is also soluble in caustic alkali, but as it dissolves it is easily affected by the oxygen of the air; I have been unable, thus far, to obtain its definite compound.

The physiological activity of adrenalin is astoundingly strong. A fraction of one drop of an aqueous solution of adrenalin, or its salt, having the strength of 1: 10,000, blanches the normal conjunctiva within thirty to sixty seconds. It is a powerful astringent.

Intravenous injection of adrenalin produces a powerful action upon the muscular system in general, but especially upon the muscular walls of the blood-vessels, and the muscular wall of the heart, resulting in an enormous rise of blood-pressure.

The intravenous injection of 0.000016 gramme of adrenalin in the form of the chloride, upon a dog weighing 30 pounds, or 15.5 kilos, raised the blood-pressure corresponding to nearly nine millimeters of mercury. The amount of adrenalin injected, per kilo of body weight, was nearly one-millionth part of a gramme.

A comparative test of the strength of adrenalin with that of the fresh extract of suprarenal gland, one cubic centimeter of which represents one gramme of fresh gland, was carried out on a dog weighing seven kilos. Adrenalin solution, corresponding to 0.000008 gramme, was intravenously injected, and it was observed that the rise in blood-pressure equaled fourteen millimeters of mercury. In order to cause an equal rise in blood-pressure it was necessary to give 0.005 gramme of the suprarenal extract. These data show that adrenalin is 625 times stronger than suprarenal extract. The sample of adrenalin used for this experiment contained some mineral impurities, so that pure adrenalin will be over 1000 times stronger than an extract of the fresh gland.

The amount of adrenalin, per kilo of body weight, required to raise the blood-pressure to 14 millimeters of mercury is one-millionth part of one gramme. One-fourteenth part of the above quantity of adrenalin may safely be assumed to raise the blood-pressure one millimeter of mercury, or at least to produce some physiological effect upon the heart and the blood-pressure. We thus arrive at the wonderful conclusion that adrenalin, administered in a quantity of not more than one-fourteen-millionth part of one gramme per kilo of body weight, will produce distinct physiological results. Thus, approximately, $\frac{1}{100,000}$ gramme of adrenalin, intravenously injected into an adult man, is sufficient to produce some distinct effect.

The therapeutic applications of adrenalin are already numerous, and new uses for it are constantly being found out by different experimenters. Generally speaking, adrenalin, when locally applied, is the most powerful astringent and hemostatic known. It is useful in all forms of inflammation, and it is the strongest stimulant of the heart. It is non-irritating, non-poisonous, non-cumulative, and without injurious properties. It has given satisfactory results in the treatment of the following diseases and conditions: Acute conjunctivitis; some cases of deafness; bloodless operations on the nose and throat; laryngeal phthisis; hay-fever; nasal hemorrhage; "bleeders;" diseases of the heart; diseases of the nose and throat; asthma; laryngitis; diseases of the urethra; Addison's disease; exophthalmic goitre, etc., etc. The therapeutic efficacy of adrenalin has already been established, beyond doubt, in the short time that has elapsed since its first production, and it will unquestionably attain to a prominent place in the materia medica.

In concluding this paper I desire to state that my thanks are due to Dr. E. M. Houghton, of Detroit, for making the physiological tests, and also my thanks and a large share

of credit are due to Mr. Wooyenaka, my associate, for his energetic and able assistance in accomplishing this interesting investigation.

THE PHYSIOLOGICAL RELATIONS OF SCOPOLIA CARNIOLICA TO ATROPA BELLADONNA.

By Horatio C. Wood, Jr., M.D.,
Demonstrator of Pharmacodynamics, University of Pennsylvania.

It is a matter of common knowledge that true belladonna is frequently replaced, especially in the manufacture of plasters, by the so-called "Japanese belladonna," *Scopolia Carniolica.** This substitution has become so important, both from a commercial and scientific standpoint, that the American Pharmaceutical Association has undertaken an elaborate investigation of the subject. This investigation includes studies of the botanical, chemical, physiological, and clinical aspects of the question. I was requested by Dr. H. H. Rusby, member of the Research Committee of the A. Ph. A. having charge of the matter, to make the physiological research of the comparative value of the two plants. This paper, therefore, forms part of a much wider investigation, and is to be considered in connection with the other studies conducted under the auspices of the committee. Although the chemistry of these two plants is to be the subject of a special research by Prof. A. B. Prescott, it may be permitted as necessary to an intelligent discussion of their physiological relations to call attention to our present knowledge of these drugs. It is generally conceded that in the *Atropa Belladonna* there are present two (possibly more) important alkaloids—atropine and hyoscyamine—and that *Scopolia Carniolica* contains probably hyoscyamine and hyoscine. It must be remembered that the proportion of hyoscine in the scopolia rhizome is very small; otherwise one would be led to conclude *a priori*, on account of the differences between hyoscine and atropine, that the two plants could not have similar therapeutic virtues.

Concerning the physiological action of hyoscyamine, the dominant alkaloid of scopolia, the studies of Laurent,* Oliver †, Guauck ‡, and numerous other investigators, have given us a fairly complete knowledge. Without discussing this literature in detail I quote from Husemann § the summary of these concordant researches: "Hyoscyamine acts locally like atropine, constricting the blood-vessels; it increases the pulse-rate by paralysis of the vagus peripherally, and in small doses elevates the blood-pressure." Hyoscyamine also acts like atropine in dilating the pupil, lessening secretion, and increasing respiration. It is common belief that hyoscyamine is more hypnotic than atropine, and does not produce the violent delirium characteristic of atropine poisoning. But as Cushny ‖ points out, the difference is so slight that only careful studies with absolutely pure drugs, which are unfortunately noticeably lacking, would justify positive conclusions; and certain it is that in some cases of poisoning by hyoscyamus the delirium has been of a very active nature.

For the purpose of comparison I have studied the effects of the separated alkaloids, tinctures, and fluid extracts of both drugs, all of which were prepared especially for this research. These were made by Parke, Davis & Co. from roots bought of various importers and carefully examined as to their botanical identity by Dr. Rusby. The experiments were performed on frogs, rabbits, and dogs.

In frogs both drugs produced, when given hypodermically, a rapidly increasing paralysis. As was first shown by Fraser,¶ when large sublethal doses are given the paralysis occasioned by atropine is followed by a condition of exaggerated reflexes, frequently associated with motor weakness. This sequence of symptoms is commonly attributed to a depression of the inhibitory center of the cord, which still endures after the paralysis of the motor cells has passed off. I have found that this paralysis of Setschenow's center is equally well marked after the use of the scopolia alkaloids as after atropine.

Studies of the paralyses by means of Turck's method, while not revealing any essential difference between the actions of the two drugs, tended to confirm the gener-

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* The term "Japanese Belladonna" refers more properly to *S. Japonica*, but is sometimes used to indicate the genus. The Japanese believe the *S. Japonica* to be identical in its therapeutic virtues with true belladonna.

* Laurent: Thesis, Paris, 1870.

† Oliver: *American Journal of the Medical Sciences*, 1881.

‡ Guauck: *Verhandl. d. Physiol. Gesellschaft*, Berlin, 1881.

§ Husemann: Pflanzenstoffe, p. 1220.

‖ Cushny: Pharmacology and Therapeutics, 1899.

¶ Fraser: Trans. Roy. Soc. Edinburgh, 1872.

ally accepted opinion that scopolia is somewhat more actively depressant to the motor cord than is belladonna.

As scopolia has been substituted for belladonna, especially for local uses, it seemed advisable to test their comparative effects when applied directly to a motor nerve. For this purpose the gastrocnemius muscle with its tributary nerve was prepared and allowed to soak in solutions of the alkaloids, and its electric irritability tested from time to time.

Scopolia.—3.53. Nerve in soak in one-tenth-per-cent solution of scopolia alkaloids in normal saline.

3.56. Responds well.

4.01. Responds well.

4.06. Does not respond, but will respond to slightly stronger stimulation.

4.52. Responds only to very strong currents.

Belladonna.—3.59. Nerve in soak in one-tenth-per-cent solution belladonna alkaloids.

4.02. Responds well.

4.11. Responds well.

4.15. Does not respond, but does respond to slightly stronger current.

4.52. Responds only to very strong currents.

From these experiments, which represent fairly the whole series, it will be seen that, qualitatively at least, in the frog no distinct difference between the effects of scopolia and belladonna can be made.

Mammals.—Most of the studies of the effects of these drugs on blood-pressure and respiration were made on dogs, while the general effects following hypodermic injection were observed on rabbits. Although a large number of these latter experiments were made, it was chiefly with the purpose of studying the dose. Suffice it to say, therefore, that with both drugs there was a hurrying of the respiration with increasing muscular weakness, followed by coma and death from asphyxia. No symptoms of excitement were observed with either drug; but frequently convulsions, probably asphyctic in origin, immediately preceded death.

Blood-pressure.—Both scopolia and belladonna were found to cause a rise of the blood-pressure, which was accompanied by an increase in the rate of the pulse. The rapidity of the pulse was evidently due in both cases to paralysis of the intrinsic cardiac inhibitory mechanism, since stimulation of the pneumogastric nerve had no effect on it. Neither of the drugs seemed to have any marked secondary action on the circulation, as enormous doses were given without any distinct alteration in either the blood-pressure or force of the pulse. In every case where the drug was pushed to a fatal result death was due to respiratory failure.

Respiration.—In moderate doses both drugs showed themselves to be powerful respiratory stimulants. It would seem that if hyoscine was present in sufficient quantity to have any part in the physiological action of scopolia, it would make itself manifest in the effect of that drug on respiration, as hyoscine is a respiratory depressant. But that scopolia is no whit less active than belladonna in stimulating respiration is shown by the following experiment: A dog weighing 6 2 kilos had a double tracheal cannula inserted, one end being connected with a Marey tambour. The respiratory rate was 36 per minute, the height of the waves recorded by the tambour being 4 millimeters. Two cubic centimeters of a five-per-cent solution of the alkaloids of scopolia, intravenously injected, caused an increase of rate to 96 per minute, the height of each breath wave becoming 16 millimeters.

Dosage.—There remains still one important point to be considered, namely, the comparative strength of the two drugs. Obviously the comparative strength of the crude drugs does not concern us here, as that depends largely on the percentage of active principles present, and is a pharmaceutical question. The point, however, of relative power of the alkaloids belongs clearly to this research. The evidence from outside, on this point, is so contradictory as to be of very little value. Thus Husemann* gives the dose of hyoscyamine as one to two milligrammes, and in a collective clinical investigation† the general consensus of opinion was that hyoscyamine should be given in doses of $\frac{1}{100}$ to $\frac{1}{25}$ of a grain. On the other hand, Shaw† uses it in ¼-grain doses. That the majority have not erred from excessive timidity is shown by the fact that $\frac{1}{40}$ grain has caused serious poisoning.‡ Evidently either the observers were using entirely different substances, or some samples contained large amounts of impurities. As evidence of this latter I cannot forbear referring to Merck's catalogue, where "Hyoscyamine, pure," is recommended in doses of ⅛ to ¼ grain and "Hyoscyamine, c. p.," in doses of $\frac{1}{150}$ to $\frac{1}{65}$.

As it is not a question of the absolute dose,

* Husemann: Pflanzenstoffe.

† Seguin: *N. Y. Med. Rec.*, 1880.

‡ Wood's Therapeutics, 1900, p. 187.

but of the comparative activity, of the two poisons, I have studied the evidence derived not only from experiments made upon mammals but also from batrachian studies.

In most of my experiments on frogs I have actually weighed the animal, but in a few I have adopted the almost universal but very unscientific method of guessing at the size of the frog. The word "medium" indicates a frog of 30 to 50 grammes weight.

Drug.	Weight of frog.	Dose in grammes	Milligrammes per gramme of body weight.	Result.
Belladonna alkaloids.	Medium.	0.02	....	No effect.
" "	Small.	0.01	....	"
" "	Small.	0.01	....	"
" "	52 Gm.	0.05	0.96	Paralysis, with recovery.
" "	37 Gm.	0.05	1.35	Paralysis, with recovery.
Atropine sulphate...	44 Gm.	0.20	4.34	Death.
" " ...	35 Gm.	0.10	2.86	"
Scopolia alkaloids...	Medium.	0.0075	....	No effect.
" " ...	Medium.	0.01	....	"
" " ...	37 Gm.	0.015	0.40	Recovery.
" " ...	55 Gm.	0.02	0.36	"
" " ...	37 Gm.	0.04	1.08	Paralysis, with recovery.
" " ...	33 Gm.	0.08	2.42	Death.
" " ...	45 Gm.	0.06	1.33	"

These experiments, although not numerous enough to bear very positive evidence, indicate that to the frog scopolia is slightly more poisonous than belladonna. Of far greater importance, however, is the study of the toxicity of the two drugs on mammals.

Drug.	Weight of rabbit	Dose in grammes	Amount per kilo.	Result.
Belladonna alkaloids..	1.5	0.4	0.267	Recovery.
" " ..	2.1	0.6	0.286	"
" " ..	1.3	0.3	0.230	"
Atropine sulphate.....	0.85	1.10	1.294	"
" "	0.84	0.8	0.952	"
" "	0.72	0.9	1.250	"
" "	0.8	1.8	2.25	Death in 1¼ hours.
" "	0.7	1.5	2.143	Death in about 1 hour.
" "	0.95	1.4	1.474	Death in 12 minutes.
" "	1.0	1.5	1.5	Death in 15 minutes.
Scopolia alkaloids.....	1.9	0.3	0.158	Recovery.
" "	1.5	0.4	0.267	"
" "	1.1	0.4	0.364	"
" "	1.8	0.8	0.444	"
" "	1.6	1.10	0.687	"
" "	0.9	1.20	1.333	Death in half an hour.
" "	1.0	0.95	0.95	Death in 45 minutes.
" "	1.2	1.0	0.833	Death in about 1 hour.

In a series of experiments made upon rabbits, given above in tabulated form, the minimum fatal dose of atropine sulphate for a rabbit was 1.474 grammes per kilo,* and the minimum fatal dose of the hydrochloride of the total alkaloids of scopolia was 0.833 gramme per kilo. In other words, the scopolia alkaloids are half again as active as the belladonna alkaloid.

CONCLUSIONS.

Scopolia Carniolica in its physiological action so closely resembles *Atropa Belladonna* as to be practically indistinguishable. Like belladonna, scopolia elevates the blood-pressure, paralyzes the pneumogastric nerve, is primarily a stimulant of the respiratory center, and in fatal dose kills by asphyxia. In the frog it is a paralyzant to the spinal cord and to Setschenow's center, and when brought in direct contact with a motor nerve lessens its function. The dominant alkaloids of the two plants, however, are probably not identical, since we find the scopolia apparently a little more depressant to the spinal cord, and distinctly more toxic.

GASTRIC ULCER: ITS ETIOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS, WITH SPECIAL REFERENCE TO TREATMENT.

By D. D. Stewart, M.D.,
Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Episcopal Hospital of Philadelphia, etc.

(*Continued from page 163.*)

Symptomatology.—A typical case of gastric ulcer presents very distinctive symptoms: these are localized, peculiar pain; vomiting; gastric hemorrhage, showing itself as more or less profuse hematemesis, or less often by the blood appearing only in the stools. There are also other digestive disturbances, such as those attending the frequently existing hyperchlorhydria. In a fair percentage of cases of gastric ulcer, in some of which the diagnosis is unfortunately enabled to be established through death by perforation, or in consequence of uncontrollable hemorrhage, or of an intercurrent disease, few or no symptoms have previously been known to exist by virtue of which recognition of ulcer was previously possible. Such cases are more or less familiar to every clinician of experience; these are spoken of as cases of latent gastric ulcer. Stoll, indeed, holds that as a result of the study of a large number of necropsy records of individuals whose life

*Fraser gives the minimum fatal dose of atropine for a rabbit as 1.0 gramme per kilo.

history was known, gastric ulcer may be latent in twenty-seven per cent of all cases. The writer's belief, however, is that few truly latent cases actually exist. It is the unfamiliarity of the general physician with the symptomatology of the less typical cases, and his lack of thoroughness in inquiry, that causes these to pass unsuspected. Quite recently the writer was asked to see a case in consultation in which there was recurring and alarming hematemesis. It was positively asserted that not only were no symptoms typical of ulcer obtainable, but that even ordinary dyspeptic symptoms had been absent. But a searching interrogation of the patient, in which leading questions were either avoided, or when by necessity introduced were so framed as not to allow the response to mislead, easily elicited a clear history of long existing hyperchlorhydria, with more recent change in the character of gastric discomfort indicating development of an element other than superacidity to account for the latter. There was also, though previously uncomplained of, the localized epigastric and dorsal pain and tenderness so suggestive. If the symptomatology of cases of so-called "dyspepsia," or what is now popularly called catarrh of the stomach, was more carefully and intelligently studied, fewer instances of latent ulcer would be found to exist. Before this can be intelligently done, the general practitioner must receive a more thorough training in the methods of gastric diagnosis. The writer has seen too many cases of ulcer, previously miscalled hysteria or a gastric neurosis, not to feel this strongly. The non recognition of ulcer often means death to the patient in a case the life of which could otherwise be spared.

During the early progress of the case, or in some subjects for a long period, little else than ordinary dyspeptic symptoms may be evidenced on casual inquiry. Since in the vast majority of cases hyperchlorhydria precedes the development of ulcer, or at least accompanies such development, the symptoms at first, as previously remarked, may be referable merely to heightened secretory activity. If ulcer is not yet present, or but in its incipiency, there is discomfort and even pronounced distress or pain, not immediately after meals, but occurring at a period in the digestion of food when saturation of the proteids and salts of the ingesta is more than complete and large excess of HCl appears as free (uncombined) acid. The discomfort or pain is then commonly dissipated by the ingestion of more food, or by an appropriate dose of an antacid. With the development of ulcer it will be noted that relief is no longer so afforded, and that pain appears early and is constant and of aggravated character. The patient frequently has gastric irritability, and vomiting becomes of common occurrence, especially after food and drink. In the vomit blood may be apparent, little altered in character, if the latter does not long sojourn in the stomach. In addition to the small hemorrhages, depending often upon the situation of the ulcer, more profuse hemorrhages may occur. These hemorrhages themselves induce vomiting. The vomit may be of blood alone, and then usually is of unaltered appearance and of more or less bright-red hue. Without actual hematemesis the stools will often from time to time show indication of blood, a profuse hemorrhage, through tolerance on the part of the stomach, sometimes only being actually so manifest, although previously suspected, by the sudden occurrence of prostration and, later, anemia. With or without evident gastric hemorrhage the patient emaciates. In many cases there is, previous to the development of ulcer, a chlorotic condition evident, with or without marked anemia. The appetite may have been capricious long before the development of ulcer. If the subject is a housemaid, the regular meals of a quality little suited to her gastric condition may have tended to develop this, as have her other forced, unhygienic habits. The appetite, if not at first markedly impaired, is apt soon to become so, a distaste for food being accentuated by the discomfort and pain induced by its ingestion. More imperfectly nourished as the ailment progresses, the chlorotic condition advances, and anemia, often at first only existing in a mild degree, augments; anemia is of course enhanced by the frequent occurrence of even slight oozing from the ulcer. The bowels are usually constipated, and the feces, if containing blood, are of characteristic color and of fetid odor. It must be remarked that small amounts of digested blood do not very perceptibly discolor the feces. There may be amenorrhea or actual suppression of the menses early in the case, so common in well developed chlorosis; or the menses may persist with an annoying tendency to menorrhagia, which further debilitates. When ulcer is of long standing there may be superadded to the chloroanemia an appearance very suggestive of the cachexia of malignant disease.

Consideration of the Characteristic Symptoms.—Pain is seldom if ever absent during the course of gastric ulcer, although it is not invariably of that character seen in typical cases, and may, in so-called latent ulcer, be unremarked for a long time. The cause of the pain is primarily the ulcer itself—the influence of the eroding process on the sensory nerve elements, bared and inflamed; of irritation of the sore by food and drink, and of the corrosive action of the secreted HCl. The pain may be contributed to by pressure on nerve filaments in the walls of the ulcer during attempts at cicatrization, and by localized peritonitis occurring at the site of adhesions. Pain may be present at all times or may be intermittent. It may be fixed or paroxysmal, but is commonly both, it usually is most intense immediately or soon after the ingestion of food and of drink, and is aggravated if chemical or thermal irritants are contained in the ingesta, or if the latter are highly spiced or of coarse nature. In many instances, however, even the blandest food or drink induces aggravation of the pain. This feature tends to separate the distress or actual pain that occurs in mere hyperchlorhydria, in which morbid sensations are usually markedly benefited or dissipated by the ingestion of food.

In ulcer pain is not only usually aggravated by food, but by the presence of the secreted HCl for the digestion of the latter. Very bland food, by combining with the acid, may temporarily, partially or even completely, relieve the pain of ulcer in cases in which excessive secretion of HCl exists. Solid food naturally causes more distress than liquid. Food or drink of extreme temperatures, or if highly spiced or acid, or containing alcohol, will likewise evoke distress. Pain may not occur at once succeeding the ingestion of food. Commonly it appears within a few minutes and increases in severity throughout the gastric digestive phase until the stomach empties itself into the bowel, or is emptied by emesis or by the use of the tube. Exceptionally pain may not be aggravated for an hour or two after taking food, but when this is the case, the suspicion should be entertained that the ulcer may be in the first part of the duodenum rather than in the stomach.

Posture often has a marked influence on the time of appearance and the duration and severity of pain. It has been suggested by this fact an idea of the situation of the ulcer may be ascertained. Relief, it is believed, can be afforded by removal of the contents of the stomach from the ulcer—the pain in ulcer situated near the pylorus being lessened by decubitus to the left; that of ulcer on the posterior wall by the prone position, etc. In ulcer, however, of any situation, save that toward the posterior wall, it is a matter of common observation that pain is usually less intense when the patient is in recumbency in dorsal decubitus. The erect posture and active exercise will generally greatly aggravate pain.

Pain is less intense and may often be absent when the stomach is empty, so that more comfort is felt during the night, and especially during the early morning hours. As a rule the better nourished the patient the less intense the pain; in conditions of physical and nervous debility it is usually most pronounced. The pain is commonly both localized and lancinating. The localized pain is apt to be present in a limited, small area in both the epigastric and dorsal regions. The epigastric site of pain is often local and is situated at a point immediately below, or not more than an inch or so below, the tip of the ensiform process, in an area which may be covered by a twenty-five cent or a dollar silver piece. Its area is often of greater extent, and may be the size of the palm of the hand or even larger. In this situation both spontaneous and provoked pain is more or less constant. Exquisite tenderness is apt to be present here to even light pressure, and deeper pressure, however gently applied, cannot be borne. In gastroptosis this localized area of exquisite tenderness may be, but is not usually, much lower than that cited. The dorsal fixed pain and tenderness is commonly placed immediately to the left of the eleventh and twelfth dorsal, or the first lumbar, vertebræ, and occupies an area about the extent of that described occurring in the epigastrium. Less often, but not uncommonly, the dorsal area of more or less fixed pain is on the right instead of the left, or may occupy both situations. Here, too, the pain is aggravated by even light pressure, but not to the same extent as it is in the epigastric pain. From these two situations, or from the epigastric center alone, should dorsal localized pain not be markedly present, the pain lancinates with paroxysmal exacerbations, induced or aggravated by the ingestion of food or drink. Often radiation occurs over the whole epigastrium and perhaps both hypochondria, through into the dorsal region, and it may be along nearly the whole spine and adjacent

dorsum. The pain is usually of pronounced burning character and is often at times paroxysmally unbearable. Radiation may occur through related sensitive nerves from the affected gastric filaments into those supplying other viscera and parts, and attacks simulating those of angina pectoris, with neuralgic pains in the left arm, may occur.

Pronounced hyperesthesia of the skin and subcutaneous tissues may accompany the epigastric, chest, upper abdominal, and dorsal pains. This is apt to be more evident on the left than on the right side. The pain may be reflected into branches of the vagus and induce spells of dyspnea. Extension may also occur into unusual paths, such as a branch of the phrenic. Such unusual persistent extensions of pain may indicate the formation of adhesions between the ulcer and an adjacent part. Adhesions to the liver may cause pain in the right shoulder.

The fixed pain is, as remarked, nearly always aggravated by pressure, however gently applied. So, too, pressure by the clothing is apt to much aggravate discomfort and pain. Women, as a rule, find they can no longer comfortably wear the corset. In so-called latent cases, and in a fair number of cases in which fixed pain is more or less constant, it may not be intensified by taking food or drink. In a small minority it may be then even less evident. Other symptoms are then necessary to establish the diagnosis, such as gastric hemorrhage.

Vomiting.—This, although very common in ulcer, does not occur with such invariability as the before discussed sign, and unprovoked vomiting may be entirely absent throughout the course of ulcer. The writer has often seen such cases. Of two cases recently studied, in one with history of ulcer of three years' duration unprovoked vomiting had occurred but twice. In the other, an ulcer of at least one year's duration, pain had not been complained of and vomiting had not occurred until provoked by an extensive gastric hemorrhage. The diagnosis was confirmed by exploratory operation. Vomiting, however, is usual in cases of ulcer, and is seldom absent throughout the course of the disease. It is commonly brought about by the irritating action of the ingesta and the superacid HCl secretion on the ulcer and on the hypersensitive stomach, and by the aggravation in pain so induced. Pylorospasm, leading to overdistention of the stomach, and to the accumulation of a superacid juice, is believed to be not infrequent in ulcer and to aggravate the paroxysmal pain present. Vomiting may occur immediately after the ingestion of food or drink, especially if these are of sufficiently irritating character to aggravate pain. As a rule, however, vomiting is less usual until after the lapse of half an hour to one or two hours. The character of the vomit in a case of suspected ulcer should be ascertained, and the presence or absence of blood looked for both macroscopically, microscopically, and chemically. Taking into account the occurrence of vomiting in relation to the character of food and the time of the ingestion of the latter, and whether alkalies have been administered, examination of the vomit should be made as to the amount of HCl, free and bound, present. This is especially necessary, since in many cases of ulcer, and chiefly those attended with hemorrhage, the stomach-tube should not be employed either for diagnostic or for therapeutic purposes save by one with large experience and discretion in its manipulations. The state of digestion of the food vomited should be ascertained, examination being also made for the approximate amount of the ferments, and, microscopically, for the persistent presence of erythrocytes, if blood has never been noted macroscopically, and for sarcinæ ventriculi, the last when there are indications of decided stagnation suggesting pyloric obstruction.

Hemorrhage.—Hematemesis occurs in about fifty per cent of all cases of gastric ulcer. When profuse, or when noted with some frequency, even when small amounts of blood are vomited, it furnishes the strongest possible evidence of ulcer. It is probable that ulcer never actually runs its course without at some period in its history at least concealed hemorrhage occurring. Such hemorrhage may often not be evident in the vomit. If vomiting is not a constant symptom, small hemorrhages, however frequently repeated, may alone manifest themselves by examination of the stool, and even with that done the blood may be undetected. It cannot be too strongly urged that although the occurrence of hematemesis is of the greatest value in the diagnosis of ulcer, the absence of vomiting of blood, or the absence of other indications of hemorrhage, should not be taken to indicate absence of ulcer in the presence of the characteristic pain and certain other symptoms. In a case that has been under observation now for over a year, with symptoms of ulcer of ten years' duration, the diagnosis of which was lately confirmed by

section, undertaken for resulting pyloric stenosis, and in which a large ulcer partially cicatrized was found in the usual situation, blood has never been noted by the patient in the vomit or stools, although always looked for in the former, and often in the latter. In this case vomiting was a daily symptom, until the patient came under the writer's observation.

With more or less characteristic pain, etc, stress may be laid on the more than isolated occurrence of even small quantities of blood in the vomit, especially if such is contained in that raised in the early part of the act of emesis, and it be certain that it has not come from the mouth or throat. In a certain class of neurotics, with irritable stomach, without other characteristic symptoms of ulcer, traces of blood may sometimes appear in the vomit, and even as much as from ten to thirty cubic centimeters may occur. A little blood is sometimes seen in cases with symptoms of mere gastritis, even when the stomach-tube is used most carefully. In such cases erosions are in all likelihood present which almost never proceed to ulcer. With a brief trial of Turck's revolving sound several years ago it was noted that small hemorrhages were invariably produced in nearly all cases in which it was tried and in which it was fairly certain that no ulcer existed. A rather free hemorrhage occurred as the result of its employment on but one occasion in a young woman in whom there had been no previous complaint of gastric pain. In these cases ulcer did not exist, but the mucous membrane of the stomach was probably in a hyperemic condition.

As concerns profuse hemorrhage occurring in hitherto unsuspected latent ulcer, the most notable case the writer has encountered was one seen in consultation with Dr. Eberhardt a few years ago. It was that of an intelligent young girl, aged twenty, in whom absolutely no present or previous history of gastric pain could be elicited, and in whom only very vague dyspeptic symptoms, not regarded by her as sufficient to deserve notice, had preceded, and yet so profuse a hematemesis occurred that life was for a time despaired of.

Physical exertion and the digestive act both favor the development of gastric hemorrhage in ulcer, as does emotional excitement. The menstrual period is also thought to favor gastric hemorrhage. That the introduction of the stomach-tube, by one unskilled in its manipulation, may induce hemorrhage in ulcer is to be ever borne in mind. The tube should always be employed with the very greatest caution in suspected ulcer, and should not be used if gastric hemorrhage has recently occurred. It is better that it should not be employed at all by the general physician in a suspected case of ulcer unless he is either familiar with its manipulation, or unless he first seek the judgment or cooperation of one who has had ample experience with its use. The danger is that of rupture of a large vessel and perhaps fatal hemorrhage, or of perforation of the ulcer itself.

The occurrence of extensive hemorrhage indicates rather deep ulceration and the opening of one of the large branches of the celiac axis. In hemorrhage not sufficient to excite immediate vomiting, the blood, altered in character by its surjoin in the stomach, may have the appearance of coffee ground material. This habitually occurring in the vomit, or in the stomach contents removed through the tube, should excite suspicion of carcinoma rather than of ulcer.

The feces should always be carefully and systematically inspected, and further examined, both microscopically and chemically, if of suspicious appearance, in a case in which gastric or duodenal ulcer seems probable or possible It should be remembered that small quantities of blood that have undergone the process of digestion may not very perceptibly blacken the feces. With a hemorrhage of small quantity the feces may be merely of a chocolate color, suggesting an increase in the coloring matter of the bile. A larger hemorrhage tends to blacken the feces; and a hemorrhage of some size, especially if duodenal or if the blood be rapidly passed from the stomach into the bowel and thence on, through the increased peristalsis sometimes so excited, may make its appearance as characteristic little altered coagula. The feces containing blood from the stomach or upper bowel which has had the usual time in transit, is apt to be of a very fetid odor. Preparations of bismuth, of iron, or of tannic acid should not be administered in a case in which it is desired to examine the stools for the presence of altered blood. The occurrence of hemorrhage of any size causes the characteristic signs of shock. These may exist without the blood being vomited, and death may ensue rapidly from concealed bleeding. This, however, is very unusual.

Gastric hemorrhage should always be thought of and searched for in suspected ulcer in which rapid increase in anemia and otherwise unexplained physical prostration

and debility occur. In frank hemorrhage, the source of which appears to be gastric, after appropriate means being adopted to both check it and prevent its immediate recurrence, a searching examination must be made to ascertain its true source, should other symptoms of ulcer not be evident. The only other likely origin, in a person at an age at which aneurism is unusual, is the lung. A physical examination of the apices after danger of immediate recurrence is past, and a careful interrogation as to a history of cough especially on rising, of expectoration, and of night sweats, and the like, and a searching examination of a specimen of sputum intelligently obtained, will generally clearly demonstrate whether the source of the blood is pulmonary. It must not be forgotten that pulmonary tuberculosis and gastric ulcer may coexist, and the mere presence of the physical signs of the former would not necessarily indicate that the blood has come from the lung. Physical signs incident to recent hemoptysis should be sought for. The condition of the heart, as for mitral disease, and especially stenosis; of the thoracic blood-vessels for aneurism; of the liver for cirrhosis (here hematemesis may occur from esophageal varices)—should all be searchingly examined into. The presence of mitral disease does not of course exclude gastric ulcer. The coexistence of the two is not uncommon, and in gastric ulcer associated with uncompensated mitral disease hematemesis is usual.

Condition of the Blood in Gastric Ulcer.—As previously stated, chlorosis, or more advanced chloroanemia, often precedes the development of gastric ulcer. When this is the case there is naturally little or no improvement save under treatment directed not only to the healing of the ulcer, but to improving the state of the blood. The morbid condition of the blood becomes naturally much accentuated by virtue of the lessened intake of food, the vomiting, and gastric pain, incident to ulcer. Should hemorrhages occur, whether of any size, or if mere repeated small bleedings, anemia, if present, will naturally become aggravated. The blood-changes in a long-standing case, whatever the original condition, are those of a secondary anemia, more or less marked. Immediately after hemorrhage there is apt to be present, as is usual from hemorrhage in any situation, a transient mild pathological leucocytosis, with the appearance in the blood of nucleated erythrocytes, chiefly normoblasts. The resulting anemia may be of a very high grade. Recently, in a case of gastric ulcer under observation in the writer's wards at the Episcopal Hospital, in which a fatal issue eventually resulted from several very copious gastric hemorrhages occurring just before admittance to the wards, a leucocytosis was observed which a day or so before death was of extreme degree. The patient sank from sheer asthenia, despite every effort to revive her. Transfusion of blood and repeated daily infusions of large amounts of saline solution was practiced without more than temporary benefit. A large number of normoblasts was always present. The diminution in red cells was very marked.

Some hold that by a blood examination, the temporary appearance of a pathological leucocytosis, and of numerous normoblasts, and the appearance of augmentations in the already present chloroanemia, a diagnosis of concealed hemorrhage may be made. This statement is of more theoretical than practical value.

As might be expected, the normal digestive leucocytosis occurs in most cases of gastric ulcer.

Other Symptoms of Gastric Ulcer.—The occurrence of an increased percentage of HCl in the gastric juice has before been spoken of. This has usually preceded the development of ulcer, and is apt to be subsequently augmented even by the irritation caused by the presence of the latter. This hyperchlorhydria may be of only moderate grade, or very extensive. The total acidity may be upward of 150 or more after the Ewald trial meal—this acidity being nearly all due to free HCl and that loosely combined. With a high HCl acidity albuminoids should be promptly digested, but the transformation of the starches by aid of the incorporated saliva, or by ingested diastase, is much interfered with.

Later in the course of the disease, in the writer's experience, the hyperchlorhydria is less constant; there may be no increase over the normal, or the percentage may fall and remain persistently subnormal; or there may be a high percentage of acidity, due to fermentative changes in the ingesta and resulting development of organic acids. The writer has two cases of undoubted ulcer now under observation, in both of which, with a high total acidity, only a faint trace of HCl is present. Diminution in the secretion of HCl in these is due to the development of a gastritis, tending to cause atrophy of the gastric tubules. Rarely, as before mentioned,

total absence of the secretory functions is found.

The appetite is usually preserved in gastric ulcer save in long existing cases, in which cachexia is present. The patient commonly desires to eat, and may have an intense craving for food which can be little gratified because of the presence of pain and vomiting.

Gastric and intestinal flatulence are not uncommon in gastric ulcer, due either to a nervous influence, or to imperfect starch digestion with resulting neutralization of the pancreatic secretion, and often with destruction of the pancreatic ferments, through the action of the superacid gastric juice.

Pyrosis (or mere heartburn) is usual in these cases of hyperchlorhydria, and also in those of hyperacidity due to presence of organic acid.

There is nothing peculiar in the condition of the bowels in ulcer. If little food is taken and vomiting is usual, constipation is the rule. The tongue is commonly not markedly coated.

In cases with hyperchlorhydria, the urine shows the changes incident to that state—a tendency to low acidity or to a persistent alkalinity, with diminution in output of chlorides. The same may occur with normal gastric acidity when vomiting is frequent.

Fever is absent unless as a result of a complication.

Pain and vomiting, with hemorrhage, if long continued and more or less constant, originate a high grade of anemia and a dyscrasia which when unchecked eventually develops into a cachexia. The bodily emaciation and the hue of the skin may after a time suggest malignant disease, which in about five per cent of cases finally develops at the site of the ulcer or in its cicatrix.

In ulcer of long standing, through inflammatory thickening about its site, sometimes aided by the formation of adhesions to an adjacent organ or part, a tumor is evident on careful palpation, or even is noticeable on mere inspection. A cachexia present with this would naturally at first tend to suggest malignant disease. In a case before mentioned of long-standing ulcer near the pylorus, to which was adherent the adjacent portion of omentum, the tumor was of some size and caused the surgeon operating for the existing cicatricial pyloric stenosis to at first question the writer's diagnosis of chronic ulcer.

The size and shape of the stomach is unchanged in cases of uncomplicated gastric ulcer.

Prognosis, Duration, Complications, and Consequences of Gastric Ulcer.—Gastric ulcer is a disease which when encountered early is very amenable to treatment. The prognosis, however, under any circumstances must be guarded. The possibility of knowing with any exactness the situation and size of the ulcer; the likelihood of such complications resulting as erosion of a large vessel; of perforation, with its attending dangers; of such consequences as cicatricial stenosis of the pylorus; the frequency of relapse—should all render one cautious in hazarding an opinion as to ultimate recovery. It may at least be said that though gastric ulcer is a disease in itself and in its effects dangerous to life, with the intelligent cooperation of the patient the majority of cases may be cured and relapses prevented, if treatment, intelligently pursued, is begun sufficiently early, and that even in long-existing ulcer a cure may likewise be brought about, although such a consequence as adhesions crippling the function of the stomach, or the partial closure of the pylorus through cicatricial contraction, cannot be prevented.

According to Van Valzah and Nisbet, in fatally ending cases of ulcer death occurs in eighty per cent from perforation, in two per cent from profuse hemorrhage, and in about five per cent from such complications as hemorrhagic anemia, deformities of the stomach, and from inanition. These authors hold that if death from intercurrent disease (tuberculosis, cancer, etc.) be excluded, the mortality of the easily diagnosed cases is about one in seven.

The duration of a case of ulcer not under favorable treatment may be very prolonged if death does not occur in some such manner as above stated. In two cases recently under observation, it has existed twelve years. Many cases of longer standing are on record. Chronic ulcer is a disease in which relapses are very frequent after apparent complete cure. This is due to the fact that both the causes inducing ulcer and those continuing it cannot always be removed.

Complications.—Certain of these must again be briefly alluded to. The more common complications are perforative peritonitis and cicatricial pyloric stenosis. Less often seen are the development of carcinoma at the site of ulcer or about its cicatrix, and hour-glass cicatricial contraction of the stomach. Grave anemia simulating the progressive pernicious

type is also sometimes observed as a consequence of an untreated or ill-managed case.

Diagnosis.—The diagnosis of gastric ulcer is commonly not a matter of difficulty, save in a minority of cases. The characteristic pain, as described, especially that localized and intensified by pressure, with the presence of emaciation and with at least a moderate chloroanemia, renders the diagnosis very probable, even when vomiting is practically absent and gastric hemorrhage is not evident. The occurrence of hematemesis with the characteristic pain can leave little doubt, if care be taken to exclude gastric carcinoma. The reader is especially cautioned not to expect to encounter in each case all the typical symptoms, and to be on the watch for latent cases in which merely slight pain, occasional hemorrhage, and vomiting occur —cases that so often are regarded by the general practitioner as merely those of chronic dyspepsia. No other disease of the stomach except cancer can cause fixed pain, acutely intensified by pressure, and even in cancer pain of this sort is far less prominent than in ulcer. Cases in which merely mild dyspeptic symptoms are recognizable until a profuse hematemesis occurs must often remain undiagnosed for a long time. Many of these cases, however, are latent only in the mind of the careless physician. As before remarked, indications of hyperchlorhydria, with pain intensified by food, is very suggestive of ulcer.

To one acquainted with the manipulations of the stomach-tube and the methods of ascertaining by its aid the condition of the gastric functions, the separation of carcinoma from simple ulcer as a rule is easy, taking into account other important differences usually very manifest. The early absence of free HCl from the gastric secretion in cancer, with marked diminution in the amount of pepsin and lab enzymes, and the presence of the acids of fermentation, chiefly lactic, and with the latter the appearance of a special lactic-acid-producing bacillus (the Oppler-Boas), when the growth occupies the pylorus, as is usual; with the early impairment of the motor function—all tend to render the separation easy. This is often aided by the presence of recognizable tumor. The age, the family history, the common absence of preceding or accompanying hyperchlorhydria, or of other gastric disorder of long standing, the comparatively early appearance of cachexia and marked wasting, are all of help in the exclusion of simple ulcer. The appearance of the blood vomited is also of value. In carcinoma the hematemesis is nearly always of blood altered to resemble coffee-ground material, and the hemorrhage, unless from ulcerating carcinoma, is rarely of large amount. It must be remembered, however, that although the favorable time for cancer of the stomach is middle age or more advanced life (between forty and sixty), ulcer is not rare during at least the early part of this period, and that gastric carcinoma is now recognized to occur with more frequency than has been thought between twenty and forty.

The cancerous degeneration of chronic ulcer is far more difficult to recognize than simple carcinoma. Often the recognition can be but mere conjecture based on the ephemeral improvement in the symptoms under treatment that experience has shown is usually remarkably successful in the cure of ulcer. The improvement may at first be decided, but relapses recur seemingly causelessly; meanwhile the anemia and cachexia increase, and with advance in the carcinomatous process the appearance of altered blood in the vomit or removed contents is common, and may replace the frank hemorrhages, if such have previously occurred. The writer has seen two cases of carcinomatous degeneration of ulcer which he has followed to a fatal issue. In these such points as above detailed were of value in arriving at a diagnosis in life. Hyperchlorhydria if it has been present may persist for a long time. Its continuance as shown in one case studied by the writer was of no value in the exclusion of ulcer. In this case (see Transactions of the Association of American Physicians, vol. xiii, 1898, and the *American Journal of the Medical Sciences*, "A Case of Two Isolated Carcinomatous Gastric Ulcers") a very high percentage of free HCl was present after not only the simple Ewald trial meal, but after more complicated meals containing meat, a number of observations being made. Here eighteen months after a celiotomy which had shown the presence of gastric carcinoma, with omental metastasis, a meal of steak, bread, and milk was readily digested without pain, and the gastric filtrate at the height of digestion displayed remarkable proteolytic power. This patient presented a number of extraordinary features, indicating how curious the clinical history of certain cases of ulcer and gastric carcinoma may be. Hyperchlorhydria had apparently preceded the development of ulcer for sev-

eral years. Indications of engrafted carcinoma had preceded for perhaps a year a very rapid decline in health, which apparently but for an exploratory section would have promptly terminated life. Coffee-ground vomiting was then occurring and emaciation was extreme. A section by Dr. Keen disclosed the stomach too much involved by a presumed carcinoma for any radical measures to be taken Rapid and apparently complete recovery followed this simple celiotomy, and in a few months, with total disappearance of all symptoms, the patient weighed ten pounds more than ever before. Symptoms, excepting those of moderate hyperchlorhydria, remained absent for nearly one and a half years, and he was yet in fair condition, with fairly preserved weight, although steadily declining from the acme of health reached after operation when he came under observation at the end of eighteen months. Coffee-ground oozing recognized in the removed contents was at this time quite constant. Vomiting did not occur, and the rather severe fixed and radiating pains present were relieved by eating such hearty food as beefsteak, although aggravated by starchy food such as oatmeal. In this case two very large isolated ulcers, which had both undergone carcinomatous degeneration, were present.

In another case in which a diagnosis of carcinoma engrafted on ulcer had been made by the writer, and which subsequently succumbed to an operation for gastroenterostomy, there had been preceding hyperchlorhydria, succeeded by ulcer, and this by carcinomatous degeneration. Here only temporary improvement under treatment which the writer has found almost invariably successful in ulcer, a persistent tendency to relapse, with increasing anemia and cachexia, and the characteristic coffee-ground appearance of the blood in the removed stomach contents, rendered the diagnosis very probable. In this case, as motor power lessened, secretion of HCl gradually diminished until it became almost absent, with appearance of the acids of fermentation.

In carcinoma not engrafted on ulcer, and in which the gastric secretory and motor power early fail, there is almost invariably absence of a digestive leucocytosis. This absence, although not peculiar to carcinoma of the stomach, occurring as it does in any condition of the stomach which entails marked diminution in functional activity, is not usual in ulcer, and the preservation of a digestive leucocytosis in carcinomatous ulcer which has not yet materially interfered with the gastric functions may be looked for. A normal digestive leucocytosis was present in the first case of carcinomatous ulcer mentioned. A pathological leucocytosis is commonly present in gastric cancer, although the numerical increase in leucocytes is not usually nearly so large as in carcinoma outside of the stomach. A pathological leucocytosis does not occur in simple ulcer save as a result of some complication, or following hemorrhage. This point itself is of some value in diagnosis.

Gastric ulcer may be mistaken for chronic gastritis, especially that form characterized by hyperchlorhydria. Attention to the points laid down in the clinical description of ulcer will obviate error, especially if it be noted that (in ulcer) the pain is sharply localized, as described, and that there is also present lancinating, paroxysmal pain, both forms of pain being increased by albuminous food. When hematemesis also occurs the separation is very easy. The same is true as to the separation of simple gastralgia from gastric ulcer; the pain of the former is commonly lessened by food, and not markedly intensified by gentle pressure. It would have been desirable to discuss more in detail points of differential diagnosis, but lack of space forbids. However, attention to the clinical history of ulcer, as described, should suffice to arrive at a correct diagnosis.

(*To be concluded.*)

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*THE MANAGEMENT OF ARRESTED POSTERIOR POSITIONS OF THE VERTEX.**

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Coupled with the request to participate in the obstetric discussion to-night was one asking me to present a brief paper on some phase of forceps operations performed by general practitioners. Reviewing my consultation work during the past ten years, for the purpose of determining wherein the general practitioner as an obstetric surgeon has been most frequently at fault with the obstetric forceps, two facts stand out prominently which I have concluded briefly to discuss with you: (1) The technique of an aseptic forceps operation; (2) the manage-

*A paper read before the Philadelphia County Medical Society.

ment of persistent posterior positions of the vertex. The majority of men in general practice believe that they possess an accurate knowledge of surgical cleanliness. For their minor surgical work they doubtless do. A forceps delivery, however, is a major operation requiring as careful technique as an abdominal section. Let me briefly describe, therefore, the technique of a clean forceps delivery.

(*a*) Sterilization of the forceps, by boiling in water for at least ten minutes. In the absence of an approved sterilizer, the forceps may be wrapped in a towel and the blades immersed in the ordinary kitchen kettle for heating water. Soaking the instrument in any antiseptic solution cannot replace sterilization by boiling.

(*b*) The toilet of the patient. After emptying the bladder and bowel, the vulva, vaginal orifice, lower abdomen, and inner portions of the thighs should be scrubbed with soap and water and pledgets of cotton, and then thoroughly bathed with 1-to 2000 bichloride solution. The vagina should not be douched unless there is known to be present a virulent discharge, in which case the vagina must be subjected to the same vigorous scrubbing, after the patient has been anesthetized.

(*c*) The operator's hands should be scrubbed with nail brush, soap and water, for at least ten minutes, then scrubbed with alcohol and immersed for *three* minutes in a 1-to-1000 bichloride solution. The hands then are best covered with rubber gloves which have been boiled for ten minutes. I cannot too highly commend the use of rubber gloves by the general practitioner in his obstetric work; they will prove a safeguard against infection that he will soon learn to appreciate. A sheet folded to make an apron and suspended from the shoulders is a ready method of protecting the patient and the operator's clothing.

(*d*) The exact position and presentation of the fetus must next be determined by a careful examination, finding, if necessary, the ear of the fetus in order to make a cephalic application of the blades of the forceps, rather than a pelvic application—*i.e.*, the blades usually should be applied to the sides of the child's head and not in relation with the sides of the pelvis, regardless of the position of the head.

(*e*) Having properly adjusted the forceps care must be exercised to maintain strict cleanliness throughout the operation, which may be facilitated by frequently immersing the hands in an antiseptic solution and at intervals pouring the solution over the vulva and vaginal orifice.

(*f*) The head should be delivered through the vulvar ring with the forceps, using it to prevent a precipitous delivery. Lacerations extending up the lateral sulci of the vagina should always be repaired with stitches, placed in each sulcus of the vagina, the large curved needle making a deep sweep to insure catching the retracted torn edges of the levator muscles and of the fascia of the pelvic floor. Most general practitioners place a few stitches to close the so-called perineal body, and wholly disregard the vaginal lacerations, which are the really important ones. Silkworm gut or well chromicized catgut should be used. Vaginal douches thereafter are unnecessary and harmful. Signs of infection require prompt removal of the stitches and thorough disinfection of the torn surfaces. You will observe that the technique described is simple and readily carried out by one not specially trained to surgical work.

Arrested Posterior Positions of the Vertex.—Of the cases of delayed vertex labor to which I have been called as consultant, sixty-three per cent have been arrested posterior positions of the vertex, and, I regret to say, in very many instances the position had not been recognized, although efforts to deliver with forceps often had been made. So frequently have I observed this fact that I instinctively anticipate an undiscovered and arrested posterior position when I am summoned to bring my forceps, those of the doctor in attendance having failed, as announced in his note to me calling me to his assistance. The proper management of an arrested posterior position involves, first, an accurate diagnosis, and then the important fact that almost invariably insufficient flexion of the head is the cause of the delay. This incomplete flexion is usually the cause of the delay in advancement of the head, whether the head is movable above the pelvic brim or partially engaged at the pelvic inlet, or occupying the pelvic cavity, or rotated to the hollow of the sacrum and resting upon the floor of the pelvis. If *one remembers that flexion of the head must always be secured*, the management is wonderfully simplified, and practically all methods of treatment, except version, have that end in view, as an important part of the treatment.

It will be convenient to discuss the management of arrested posterior positions of the vertex in accordance with the degree of

the advancement of the head along the parturient canal, whether above the pelvic brim or occupying the pelvic cavity, or resting upon the pelvic floor. With the head above the pelvic brim a careful examination will find the head incompletely flexed, and we have to choose between four methods of treatment: First, external manipulation and posture of the patient to effect an anterior position of the vertex; secondly, internal manipulation combined with posture to obtain anterior rotation, followed by a high application of the forceps to effect engagement of the head in an anterior position; thirdly, the application of forceps to the head with the occiput posterior; and finally, podalic version.

As a matter of fact, external and internal manipulation and postural treatment in these cases rarely succeed, because the cause of the delayed labor is not recognized early and the conditions favorable to their successful employment — unruptured membranes, a dilated lower uterine segment, and relaxed vagina — are not present. When the os is rigid and the head is firmly grasped by the lower segment of the uterus, intra-uterine manipulation to secure dilatation and to rotate the head forward is an exceedingly difficult and dangerous operation in the hands of one unaccustomed to obstetric surgery. After anterior rotation has been secured, there is yet to be performed a difficult high forceps operation, so that from beginning to end the unskilled operator exposes the mother and the child to greater dangers than he would by at once resorting to podalic version. It is true, however, that version in these cases will be followed by a high fetal mortality, and in cases where labor has been prolonged, the membranes are ruptured, and the position of Bandle's ring is elevated, version must be discarded in favor of the forceps. It will thus be seen that in many cases we are forced to apply the forceps with the head above the pelvic brim and the occiput posterior to the transverse diameter of the pelvis. The question then naturally arises, shall we attempt to apply the blades to the sides of the child's head, or shall a pelvic application be made; or, failing to secure flexion and therefore failing to advance the head with the forceps, shall we attempt to secure flexion by the so-called reverse forceps application, in which the blades are applied with the concavity of the pelvic curve looking downward, and tractions are thus made to pull the occiput down until the head is well flexed, when the forceps is removed and reapplied in the usual manner to the sides of the child's head, after it has entered the pelvis?

The disadvantages of applying the forceps to the sides of the child's head when the occiput is posterior to the transverse diameter, and the head is incompletely flexed and above the pelvic inlet, are, first, the extreme difficulty of such application because the sacral promontory encroaches upon the space where the posterior blade is placed, and secondly, when traction is attempted the instrument almost invariably slips and the tips of the blades approach the ears of the child, and if watchful care is not exercised, extension of the head will result rather than flexion. For those reasons, if the head is not engaged or is only partially engaged, despite the danger to the child's head the Tarnier axis traction forceps should be used, and the application should be the so-called pelvic application, in which the head is grasped somewhat obliquely. The operation of reversed forceps should only be attempted by the skilful operator, and in every case attempts should be made from time to time to push the forehead up and secure flexion during the intervals between tractions when the grasp of the forceps is relaxed. Having drawn the head through the pelvic inlet, the Tarnier forceps should be removed and the Simpson or Tucker forceps should then be applied to the sides of the child's head. With careful traction and gentle attempts at anterior rotation of the occiput, the head is finally brought to the pelvic floor and rotated to an anterior position, when again the forceps must be removed and reapplied to the sides of the child's head in order to complete the delivery.

Where flexion has been incomplete or the relative size of the head and pelvis is abnormally large or small, backward rotation of the occiput may have occurred, and the problem now is the management of the third class of cases, to which I especially wish to call your attention, namely, the occiput arrested in front of the sacrum. The use of forceps in these cases has usually been that of a tractor. Most authors in discussing this question have condemned the use of the forceps as a rotator, pointing out as dangers of the latter operation the excessive twisting of the child's neck without corresponding rotation of its trunk, and extensive laceration of the vaginal wall. Guided and warned by such advice, it has only been within the last two years that I have attempted anterior rotation of the occiput from the hollow of the sacrum by means

of the forceps. I was influenced to attempt this operation as routine practice, from my experience with the dangers to the child and to the maternal soft parts, especially in primigravidæ, when delivery has been accomplished by overflexing the head and then extending it as the occiput cleared the vulvar ring. When anterior rotation is effected with a solid-bladed instrument, the operation slowly and deliberately performed before the soft parts have become edematous from delayed labor, and when we have made the conditions favorable by bringing the vertex to the vulvar outlet, by being sure that the cervix is fully dilated, the bladder and rectum empty, and, most important of all, that the head is flexed as much as possible—in the presence of these conditions, which are of our own making, I have repeatedly performed the operation without producing extensive laceration, and with as good, if not better, results for the child. The forceps with solid blades, such as Tucker's, is less liable to slip, not so apt during rotation to make incised wounds on the child's scalp and face, and by exercising sufficient care to *keep the tips of the blades always in the axis of the pelvic canal*, as I shall demonstrate on the mannikin, extensive laceration of the vaginal walls will not occur. Repeated examinations should be made to note the progress of rotation by studying the changing position of the sagittal suture. After this suture has been rotated in front of the transverse diameter of the pelvis, the head should be held in this position until several uterine contractions and relaxations have occurred, and abdominal manipulations must be carefully practiced to secure anterior rotation of the trunk, thus avoiding injury to the child's neck. One must be *very sure* that such rotation of the trunk has occurred before proceeding to reapply the forceps to the anterior position of the occiput in order to complete the delivery in the usual manner.

I shall only refer to the application of reversed forceps for rotating a posterior occiput in order to condemn it. In the hands of even an expert operator this operation is attended with dangers that far outweigh its only advantage, namely, the completion of the delivery without the necessity for reapplying the forceps after rotation has occurred. Reapplication of the forceps has a distinct advantage for the child, in that the head is grasped at a different place, compression is relieved, and threatened asphyxia is frequently prevented; and, therefore, the reapplication is always to be preferred. When the head fails to rotate anteriorly unless great force is employed, as usually will not be the case, it is best to abandon attempts at rotation and deliver the head with the occiput posterior, bearing in mind the necessity for elevating the handles to produce overflexion of the head and then to depress the handles, thus delivering the face under the pubic arch after the occiput has cleared the vulvar ring.

HYDROCELE AND ITS TREATMENT; SUMMARY OF 338 OPERATIONS; DESCRIPTION OF A NEW METHOD SUGGESTED BY DOYEN FOR THE RADICAL CURE OF HYDROCELE OF THE TUNICA VAGINALIS TESTIS.

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After having investigated the literature of hydrocele the surgeon will be astonished to find how many methods of treatment have been suggested for the radical cure of the disease. Want of space and time will prevent my doing more than taking up for consideration those methods only which are in vogue at the present time, and have proved to be of value. That chronic hydrocele is rebellious to treatment is patent to any one who has had much experience with the disease; this, too, is shown by the extraordinary number of expedients which have been recommended for its relief. At the present time there are five different methods of treatment employed with a view to effecting a radical cure. They are: (1) Acupuncture (for infantile hydrocele); (2) tapping and injecting with irritating substances; (3) antiseptic incision; (4) incision, with partial excision of the sac; (5) incision, with eversion of the tunica vaginalis testis.

Cases where spontaneous cure has unexpectedly taken place have been occasionally observed, notably by Terrillon and M. M. Monod. I have had a similar experience with a patient who was referred to me several years ago by Dr. Joseph Price, of this city. The individual had an ordinary hydrocele of the left side containing about eight fluid-ounces; it had made its appearance one year before I first saw the case. I suggested a radical operation, to which the patient consented, but stated that business affairs made

it necessary for him to postpone surgical interference for at least three months. Soon after, to my surprise, the tumor began gradually to diminish, and at the end of a month it had completely disappeared. A spontaneous cure may be looked for in some instances where there has been an inflammatory condition of the scrotum following traumatism, epididymitis, orchitis, or erysipelas. A case is reported where absorption of the fluid took place after a sharp attack of gout, and another after recovery from smallpox. This fortunate and much-to-be-desired result is unfortunately so rare as not to be regarded as one of the probable terminations of the malady.

I am indebted to one of my clinical assistants, Dr. Henry Tucker, for arranging the following table from the operating book of the genito urinary department of the Jefferson Medical College Hospital. The table gives the number and character of cases operated upon from 1894 to 1901.

Hydrocele, congenital (resection and ligation of fornicularform process)	2
" diffused of cord	2
" double (resection of both sacs)	19
" ("en bassac")	1
" encysted of cord (resection of sac)	17
" encysted of cord, with hernia (radical cure of both)	1
" encysted of epididymis (resection of sac).	7
" encysted of tunica albuginea	5
" (spermatic cyst)	1
" infantile (antiseptic incision)	9
" (needle operation)	25
" inguinal (castration and resection of sac).	3
" inguinal, complicated with hernia (castration, resection of sac, and radical cure of hernia)	4
" (resection of sac, transplantation of misplaced testicle, and radical cure of hernia)	2
" multilocular	1
" obliterated hernial sac	2
" tunica vaginalis (antiseptic incision)	25
" " " double (antiseptic incision, both sacs)	8
" " " and encysted of cord	8
" " " inguinal hernia (radical cure of both)	9
" " " (resection of sac)	94
" " " inversion of tunic	8
" " " (tapping, palliative operation)	84
" " " with encysted hydrocele of epididymis	1

On consulting this table it will be seen that three hundred and thirty-eight operations were performed for the relief of the various known forms of hydrocele, some of which were very rare and of unusual interest. No deaths resulted from any of the operations. The cases treated included all ages, from infants a few weeks old up to septuagenarians. This would seem to show that with proper antiseptic precautions the dangers attending the various methods of operation for hydrocele are slight. The patients who were treated by the method known as "antiseptic incision" usually left the hospital on the sixth day, whilst those whose sac was partially resected were able to leave the institution on the ninth day.

Thirty-four of the cases were infants who were operated upon by the method known as the "needle operation," or "acupuncture." Of this number nine cases recurred and were again operated upon, antiseptic incision being employed in the second instance. In two out of the nine cases so treated recurrence took place, and in each instance the sacs had to be partially resected before a cure was effected. Thirty-four adults were operated upon by the method known as "antiseptic incision," of which number the hydrocele was double in eight cases. So far as we have any record, recurrence took place in nine cases, rendering another operation necessary. Partial resection of the sac was performed in ninety-four cases; in two instances, the hydrocele being double, both sides were operated upon at the same time. Recurrence has been known to take place in but one case. In performing the needle operation in infants it was found that acupuncture had to be performed from four to six times at intervals of once a week until a cure was secured. The antiseptic incision was reserved for diminutive cases, where the sacs were thin, and had not been tapped, or injected with irritating substances; the sac being limited to the scrotum and not extending up into the inguinal canal. For the past two years this operation has been performed by cocaine infiltration anesthesia, a one-per-cent solution being employed. Out of the number operated upon, recurrence took place in nine cases. The number of cases in which relapses occurred is possibly larger than that named, as it is probable if recurrence did take place the individuals were either in different parts of the country or had sought relief elsewhere. From the results obtained from this operation, whilst it is safe and easily performed, it does not appear to be very reliable. Its usefulness seems to be limited to small recent hydroceles, with thin sacs, which have been neither tapped nor injected. Tapping or injecting with either iodine or carbolic acid had been performed in six of the cases which have been reported previous to making the anti-

septic incision, and even after the latter operation had been accomplished four of the cases so treated recurred. This operation was employed by me before I had an extended experience with the radical treatment of hydrocele. In later years I have partially resected the sac in well-nigh every instance.

The cases selected for partial excision of the sac were those where the amount of fluid was large, which had extended upward into the inguinal canal, and which had been previously treated by means of injection of irritating substances. The mode of operating employed differed somewhat from that recommended in the text-books. An incision was made over the tumor dividing the tissues down to the sac, taking care not to open the tunica vaginalis, which was dissected entirely free from the adjacent textures and brought out through the incision in the skin. The sac was then opened throughout its entire length and trimmed away with scissors; the portion covering the cord was mopped off with pure carbolic acid. If hemorrhage from the cut margin of the sac proved troublesome, it was controlled by means of a continuous catgut suture applied along both edges of the divided tunic. The wound was then closed in the usual manner, and a small quantity of iodoform gauze was left in the dependent portion of the incision for the purpose of drainage; this was removed at the end of twenty-four hours.

The method of treatment here described has proved most satisfactory. As far as is known recurrence has taken place in but one instance. Return is less liable to take place after this operation than after any other hitherto suggested. It is the most extensive and severe of any of the methods that have been employed up to this time; hemorrhage is sometimes troublesome if the sac is very thick and has been repeatedly tapped, or if it has been injected with carbolic acid. Out of the ninety-four cases so treated, fifteen had been repeatedly tapped and eighteen had submitted to the injection of stimulating substances, resulting unsuccessfully. In eighty-four cases the palliative treatment was employed. This consists in simply evacuating the fluid contents of the sac by means of a trocar and cannula, or by the use of an aspirating needle. This method of treatment was reserved for patients who were very far advanced in years or suffered from some chronic disease of the heart, lungs, or kidney. For the purpose of tapping a hydrocele most surgeons employ a trocar and cannula designed for the purpose. I have found that an aspirating needle about the circumference of No. 9 M. (French scale) is preferable, as the sight of a small needle gives rise to less fear in the timid individuals than does that of the trocar; it is inserted with less pain, the wound inflicted in the scrotal tissue is much smaller, and consequently there is less danger of infection. I have employed both instruments in numerous cases, and have found the needle to be the more satisfactory.

It will be observed that none of the cases reported were treated by tapping and injecting irritating substances into the sac. The late Prof. S. D. Gross advocated the use of tincture of iodine as an injection, and Dr. R. J. Levis was the first to suggest the employment of carbolic acid. As clinical assistant to both these gentlemen I had abundant opportunity to witness the results obtained from the use of these fluids. In the majority of the cases when the tincture of iodine was employed the termination was extremely unsatisfactory. Its use was usually attended by a prolonged convalescence, the patient often being confined to his bed from ten to fifteen days; in many cases two or three months elapsed before the surgeon knew definitely whether or not a cure would be effected. Immediately after the injection of either tincture of iodine or carbolic acid the sac became enormously distended and was usually attended with a great deal of pain. In many cases relapses occurred. Jacobson states that "in twenty-five cases so treated at St. Thomas's Hospital recurrence took place in eighteen." Of nineteen cases treated by Bardelelon, but sixty-five per cent were cured. Jacobson estimates the recurrence in our climate from this method of treatment to be about ten per cent. In my experience this is rather a low estimate. Extensive edema of the scrotal tissues has been reported following the escape of either tincture of iodine or carbolic acid into the structures. Suppuration of the sac, abscess of the testicles, and carbolic acid poisoning have all been noted. In one case, treated by means of carbolic acid injection, abscess of the testicle followed, involving the cord, giving rise to a lymphangitis; death finally taking place from sepsis. The only thing which commends tapping and injecting a hydrocele sac is the fact that it is readily and rapidly performed. The objections to tapping and injecting for hydrocele are so numerous that most surgeons now resort to the open operation; it is far safer and less

painful, with quicker convalescence, and a diminished liability to recurrence.

It will be observed that the treatment employed in the cases here recounted was not entirely satisfactory. The method which uniformly gave the best results was when the sac was partially resected. This operation required an anesthetic, took some time to perform, the operation frequently being prolonged in order to give attention to controlling the annoying hemorrhage that supervened. About nine days was required for convalescence; after which there was no certainty that a recurrence would not take place. The profession is therefore still in a position to adopt with cordiality any new method of treating this affection that will take less time in its performance, that will be attended with less pain, and be followed by a greater certainty of a radical cure. It is believed that an operation which fulfils these indications has at last been devised and is so simple that the wonder is that it had not been thought of before.

In 1898 Winkelman published in the *Centralblatt f. Chirurgie* (No. 44, p. 1092) a description of a new method of operating on ordinary chronic hydroceles, which seems to answer all requirements and solve the vexed question as to what may be the most practicable. The operation is performed under local anesthesia, Schleich's infiltration method being employed. The ordinary incision is made through the scrotal tissue until the tunica vaginalis is reached. An opening is then made in the upper portion of the sac in the vicinity of the cord, large enough to permit the testicle to be drawn through, after the fluid is evacuated, when the tunica vaginalis propria is turned back, or everted. In order to prevent the testicle from slipping back into the sac, the upper part of the tunica vaginalis is secured by means of fine catgut to the fascia of the cord, a suture being at the same time placed at the lower end of the repleted tunica, thereby anchoring the tunic in its new position and preventing the testicle from returning to its normal position. The testicle together with the inverted sac is then replaced within the scrotum, and the wound closed by means of a couple of interrupted sutures. The time employed for the operation is less than ten minutes. As it is not attended by hemorrhage no ligatures are needed.

When studying the subject of hydrocele I found that a precisely similar operation to that of Winkelman had been previously described by E. Doyen, of Reims, France, in the *Archives Provinciales de Chirurgie* (tome iv, No. 2, p. 706, 1895), under the title of "Radical Cure of Hydrocele by Inversion of the Tunica Vaginalis," thus antedating the publication of Winkelman by three years, so that it appears the credit of first suggesting this process belongs to Doyen and should receive his name.

I am under the impression that this operation was first performed in this country by Prof. W. W. Keen at the surgical clinic at the Jefferson Hospital on January 16 of the current year. In the minutes of the case it is noted: "The operation required less than ten minutes to perform. No ligature was required. The highest temperature reached was 99.2°. The patient left the institution on the twelfth day, cured."

Since witnessing the operation here referred to I have had the opportunity of performing it eight times. My experience in each instance has been similar to that of Dr. Keen. The largest hydrocele contained one and a half pints of fluid. In each case the time required for the performance of the operation was about nine minutes. No ligature was required, and the patients were enabled to leave the hospital on the ninth day.

In large hydroceles of long standing, with greatly thickened sacs, the operation would not be feasible, and the partial resection of the tunic would have to be resorted to. This is illustrated by a case that came under my care one week ago. The individual was a mounted policeman who stated that two years ago he struck his scrotum against the pommel of his saddle, and in consequence a hydrocele was developed; that two weeks before presenting himself at the hospital he had knocked the tumor violently against the corner of an ash box, when it became very much enlarged and painful, and at the same time turned "as black as his shoe." On opening the sac a pint and a half of serum mixed with blood and bloody clot was evacuated. The sac was thickened to the extent of about one-quarter of an inch, and it was firmly adherent to the surrounding tissues. It was dissected loose with difficulty. The thickness of the tunica in this instance would have rendered inversion an impossibility. It is interesting to note that the cause of the hematocele was found to be due to a rupture of the tunica vaginalis propria about two and a half inches in length at the bottom of the sac, directly opposite the point at which the blow had been inflicted.

In all the cases operated upon by inversion of the tunica vaginalis a painless enlargement of the testicle resulted; it was, however, not attended with any rise of temperature, and it gradually subsided in about ten days. This condition is precisely similar to that which always follows the open operation for hydrocele. The first case operated upon by me, on January 18 last, was seen two days ago. The individual was perfectly well, and a trace of the operation was detected only by making a careful examination.

This new operation is still on trial. My experience is too recent for me to determine whether a recurrence of the ailment may or may not take place in any of the cases that have been under my supervision. From the fact that the inverted tunica vaginalis must become attached to the surrounding structures, and the cavity formed by this sac is thus permanently obliterated, it would look as if a recurrence of the condition would be an impossibility. The removal of the entire tunica vaginalis, except a small strip covering the cord, in ninety-four cases has convinced me that no fear need be entertained as to the result of injury to the testicle by being deprived of its natural covering.

My limited experience with this new method of treatment inclines me to the belief that it will prove to be the most satisfactory operation which as yet has been suggested for the radical cure of an ordinary chronic hydrocele.

THE TREATMENT OF SIMPLE AND COMPLICATED FRACTURES.

DUPLAY (*Annales de Chirurgie et d'Orthopédie*, No. 12, 1900), after calling attention to the three cardinal indications in the treatment of fracture of the leg—namely, reduction, retention until complete consolidation, and subsequent oversight until the limb becomes entirely functional—advises in effecting a reduction that the thigh be flexed on the trunk and the leg flexed on the thigh, the foot being held in extension, thus relaxing all the muscles. The limb having been thus placed, an assistant, by means of his two hands locked together, exercises counter-extension upon the thigh beneath its flexor surface just above the popliteal space, while a second assistant, seizing with one hand the back of the heel, with the other the dorsal aspect, makes extension. The surgeon himself then coapts the bones by means of direct pressure. Reduction once having been obtained, it is best maintained by a plaster-of-Paris bandage; the bones being held in proper position until this has completely hardened.

In simple fractures this plaster is allowed to remain without being renewed for forty-five days in the case of an adult; for a somewhat shorter period in the case of a child. If the fractures are complicated by extensive contusion, with great swelling due to blood infiltration, and the formation of vesicles upon the skin, reduction should be maintained by a plaster-of-Paris splint molded to the part, and so applied that it is made up of two hinged portions. A layer of cotton is interposed between the surface and the splint, which is closed with moderate pressure. This splint is renewed as it becomes soiled by the breaking of the phlyctenulæ, or as it becomes too large from diminution of the swelling. When the fracture is complicated by wounds, a molded wire splint is serviceable; this is replaced by the plaster of Paris when the wound is sufficiently healed. The blisters which are raised upon the skin surface, and which are sometimes enormous, should be opened by a pair of scissors. An antiseptic powder should then be dusted on the skin, which should be protected by a layer of cotton, after which the plaster of Paris should be applied if there be no other complication.

When muscular spasm appears, and this is particularly likely to occur in drunkards, an anesthetic should be given and should be maintained until the fracture has been reduced and has been retained by the thoroughly hardened plaster.

Some fractures, even under anesthesia, are irreducible, either because of the multiplicity of the fragments, or because they are wedged, or because of the interposition of a displaced fragment.

A fracture is said to be incoercible when it can be reduced, but the deformity recurs the moment that the pressure and retraction used to accomplish reduction cease; this is usually due to the extreme obliquity of the line of fracture. Under such circumstances continued extension may be desirable, applied by means of weights secured to the limb by adhesive plaster. When this means seems inoperative, the molded splint aided by direct pressure applied to the projecting fragment has sometimes proved satisfactory.

When the fracture in spite of every form of dressing remains either irreducible or incoercible, the seat of injury should be laid bare by incision, and the bone should be secured by suture.

The Therapeutic Gazette

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Leading Articles.

SOME POINTS IN THE TREATMENT OF RHEUMATIC FEVER.

We have from time to time, in the editorial pages of the THERAPEUTIC GAZETTE, expressed our views as to the value of the salicylates, the iodides, and *rest* in the treatment of acute articular rheumatism, and the readers of the GAZETTE may remember one particular editorial about a year ago in which we called attention to the emphasis lately laid upon the value of rest, for the purpose of curing incipient heart lesions due to rheumatic endocarditis, by Sir Douglas Powell, physician in ordinary to her late majesty, the Queen. It will be remembered that Sir Douglas showed very distinctly that rheumatic patients who left their bed too early after the subsidence of the fever were far more apt to develop, later on, permanent manifestations of valvular disease than those who were forced to remain quiet in bed for a period of several weeks after all joint manifestations had passed away. We have again and again been able to verify this very important clinical and therapeutic fact, and we now have in mind several cases seen within the last twelve months which illustrated the advantage of rest very strongly. In two of these cases the patients insisted upon getting up and going about within a week after the subsidence of the fever, and the disappearance of general manifestations. In both of them chronic and apparently increasing valvular deformity is taking place. In two other cases, on the other hand, who seemed to be in a much more unfavorable condition, so far as ultimate recovery was concerned, complete cardiac recovery has apparently taken place. In one of these cases a man of advanced years had a very distinct mitral regurgitant murmur, and was not allowed to leave his bed until this murmur disappeared. Since that time he has been able to do as much work as before he was taken ill, and we feel confident that had he been allowed to go about too early this lesion would not only have become permanent but probably have been progressive and greatly shortened his life.

Another method of treatment connected with the cardiac manifestations of the rheumatic poison which has been mentioned a good deal within the last few months, and to which we have drawn attention in the columns of the GAZETTE, is that which has been advocated chiefly by Caton, of England, who claims that the frequent application of small fly-blisters over the precordium during the course of rheumatic fever does much toward preventing serious valvular endocarditis. The statistics which Caton publishes are certainly very extraordinary; indeed, they are so favorable that we cannot help believing that he has been unusually successful with the cases which have happened to come to his hand; for so far as we know, no one else has approached such good results by any method of treatment which has been instituted, and we fear that a larger series of cases will show that the method is not all that Dr. Caton believes it to be. Nevertheless, it seems to have produced clinical results which are well worthy of our consideration, and we would suggest that the method be thoroughly employed.

A rheumatic endocarditis having once been established during the acute course of the disease, the question arises what can best be done for it. In this connection it must be remembered that the rheumatic poison is not only capable of causing serious lesions in the valve, but also of affecting the heart muscle as well; and the presence of fever combined with these facts would seem to

indicate that digitalis can hardly be expected to exert its good effect upon the heart muscle under these circumstances, but that on the other hand moderate doses of strychnine and the use of ammonium carbonate are probably the best cardiac stimulants for ordinary purposes. In this connection we should not forget the very great value of opium and morphine in endocarditis, myocarditis, and pericarditis; for not only do these drugs give relief from the pain and suffering, but they diminish the patient's anxiety, quiet his restlessness, and slow the pulse by allaying nervousness and by direct action upon the circulatory apparatus. This question of slowing the heart does not, we think, receive sufficient attention. When we consider that a difference of ten beats a minute mounts up to 600 beats per hour and 14,400 beats a day, we can readily see that what may seem to be comparatively slight variations in pulse-rate may mean very great variations in the amount of work put out by the heart muscle in twenty-four hours. This is also a valuable point to remember in connection with the development of pericarditis, for there can be no doubt that the slowing of the heart rate, which prevents the two surfaces of the pericardium from being rubbed together, very frequently is distinctly disadvantageous. For this purpose, also, Luff has recommended that from eight to twelve leeches be placed over the heart, and after they have been removed an ice-bag applied; the leeches, it is asserted, giving speedy relief to the cardiac distress, and the ice-bag allaying pain and discomfort.

Another point which is emphasized very strongly by Luff in an article recently contributed to the *London Practitioner* is the valuable results which are to be obtained by combining the salicyl compound with an alkaline bicarbonate. He states that twenty grains of sodium salicylate and thirty grains of potassium bicarbonate should be given every two hours until the rheumatic pains in the joints are relieved, when the same quantity should be given every four hours until the temperature has fallen to normal. After this, fifteen grains of the salicylate and twenty grains of the bicarbonate are to be given every twenty-four hours until all joint symptoms disappear, and then three or four times a day until a fortnight has elapsed after the complete disappearance of the joint symptoms. The salicylate is to be administered cautiously and not haphazard, and if it causes deafness, great fulness of the head, and delirium, its dose should be reduced, or it should be withdrawn. The cerebral symptoms can now and then be avoided by giving a dose of calomel followed by a saline purgative. It seems to be the general opinion of English physicians that salicin is less depressing to the nervous symptoms and the heart than salicylate of sodium, more apt to be pure, and almost equally valuable so far as the rheumatic poison is concerned. In a part of his valuable article dealing with this subject in the *London Practitioner*, Luff makes the following remarks in regard to the treatment of rheumatic fever by the use of alkalies:

"The treatment of rheumatic fever by alkalies, which was first advocated by Fuller, was originally adopted on account of the view that an excessive production of lactic acid was the causative factor of the disease. Such a view is not now held, but it is probable that a diminished alkalinity of the blood is associated with rheumatic fever, and that along with this diminished alkalinity hyperfibrinosis of the blood occurs. If such be the case the advantages of treatment by alkalies are obvious, especially if the removal of the hyperfibrinosis does away with or diminishes the liability to fibrinous deposits on the valves of the heart. It has for some time been the opinion of many observers that heart complications are less frequent among those patients who have been treated with alkalies, and this has been ascribed to the influence of those substances in preventing the coagulation of fibrin. Other observers have insisted that valvular affections of the heart are less frequent when alkalies are employed in combination with salicylates than when salicylates alone are used. From the statistics of 224 cases of rheumatic fever admitted into St. George's Hospital without any affection of the heart, part of whom were treated with salicylate together with alkalies, and part with the salicylate alone, of those treated with salicylate and alkalies not quite two per cent developed endocardial murmurs while under that treatment, whereas of those treated with salicylate alone 9.6 per cent developed endocarditis or pericarditis while under treatment. If these views as to the usefulness of alkalies are correct, then the conjoint employment of a salicylate with an alkali in the treatment of rheumatic fever is obvious, the salicylate acting by diminishing the fever and the arthritic pain, and the alkali by averting or diminishing the tendency to endocarditis. Douglas Powell regards the usefulness of

alkalies rather as increasing the oxidation of the tissues and promoting the elimination of morbid materials."

THE USE OF ATROPINE TO AFFECT THE INTESTINES.

There can be no doubt that the profession is in need of some medicinal substance which when given hypodermically will produce evacuation of the bowels, for conditions are frequently met with in which because of gastric irritability it is impossible to administer the purgative by the mouth, and ordinary rectal injections to unload the upper portion of the bowels are not always possible because irritability or inflammation of the bowel prohibits any attempt to produce a movement by introducing medicinal substances into the rectum. For this reason, from time to time, various drugs have been studied with the hope that they might be introduced hypodermically and affect the intestine, but practically none of them have been found to be of any value. It is true that Ostermaier, Batsch, and others have attempted the treatment of intestinal obstruction by the use of large doses of atropine with the hope that this drug by depressing the inhibitory fibers of the splanchnic nerves might produce active peristalsis, or on the other hand, by overcoming muscular spasm would permit peristaltic movement to take place. Thus Ostermaier has used these injections of atropine in the intestinal inactivity associated with hepatic or renal colic, movable kidney, and other conditions where laxatives have failed. He found that atropine was usually successful in producing a copious fecal evacuation in from twelve to thirty six hours, and that if it failed to act in this manner a very small dose of castor oil, or some other purgative, was efficacious. He further suggests that atropine be employed hypodermically to overcome the intestinal feebleness or inactivity following severe abdominal operations.

Other investigators, notably Raviart, have stated that the hypodermic injection of the hydrochloride of apocodein, an artificial alkaloid derived from codeine in much the same manner as is apomorphine from morphine, was capable of producing active peristaltic movement.

The medical profession have of course for many years recognized the fact that the administration of morphine and atropine was capable of producing active peristalsis in certain cases; notably, in instances of obstinate constipation of the bowels due to chronic lead poisoning. In these cases it has been found that the administration of ordinary purgatives is entirely inadequate to produce intestinal movement, whereas the hypodermic injection of morphine is often speedily followed by purgation. This clinical fact is explained by the hypothesis that the lead has produced a condition of muscular spasm of the intestine which is increased when irritating cathartics are administered, whereas when the nervous and muscular irritation is relieved by morphine, spasm is relaxed and peristalsis takes place. It is claimed by some that obstinate constipation dependent upon renal or ovarian disease is often relieved by the administration of bromides, which, by decreasing reflex excitability, prevent irritability of the ovary or kidney from reflexly inhibiting intestinal movements. So far as we are aware the statement of Raviart that apomorphine when given hypodermically is a reliable purgative needs confirmation. While his remarks are not entirely original, a sufficient number of the profession have not yet employed this method to justify us in believing that it really is a remedy of great value for this purpose.

It has been held by some that in severe tympanites the administration of eserine in the dose of one-fiftieth of a grain by the stomach would exert its influence upon the intestinal coat and cause an expulsion or disappearance of the gas causing tympanites. We have employed eserine for this purpose in a number of cases, but we have never been able to satisfy ourselves that its action was very positive. It is an undoubted fact that eserine does influence unstriped muscular fiber, but how great its influence is in cases of disease is still uncertain.

SOME FURTHER FACTS IN REGARD TO THE RELATIVE EFFECTS OF THE VARIOUS ANESTHETICS COMMONLY EMPLOYED.

We have read with much interest the report of the Anesthetic Committee of the British Medical Association, which is published in an abbreviated form in *The Lancet* of January 26, 1901. Unfortunately, the statistics contained in this report are in one sense decidedly lacking in value, because chloroform is the anesthetic which has been employed in the vast majority of cases

which have been reported to the Commission. Thus out of 25,920 cases analyzed no less than 13,393 received chloroform; whereas 4595 received ether, 2911 nitrous oxide, 2071 ether, 678 the A. C. E. mixture, 597 nitrous oxide mixed with oxygen, 418 chloroform and ether in various proportions, 275 chloroform followed by the A. C. E. or by some similar mixture, and 155 A. C. E. followed by ether. It will be readily seen, therefore, that the vast majority of cases analyzed belong to the list which should be included under the heading of pure chloroform anesthesia, and a comparatively small number, about one-fifth, were cases in which ether was employed. Out of the 25,920 cases analyzed, very few produced untoward effects; or, in other words, 25,163 were reported as uncomplicated—that is to say, 97.169 per cent of the total cases of the record taken escaped any evil influence. Of the complicated cases, we find that a considerable number manifested symptoms which were only mildly dangerous, and that twenty-nine deaths are recorded in which the reporter stated that he believed the deaths to be purely due to the anesthetic.

It is interesting to note that a greater percentage of complications occurred when males were put under the influence of any one of these drugs than when females took them, being nearly six times greater in males than in females, although this ratio of danger symptoms varied with the anesthetic employed.

Thus *The Lancet* tells us that in males the percentage of danger cases under chloroform was nearly six times that of danger cases under ether, more than seven times that of danger cases under gas and ether, and nearly two and a half times that of danger cases under the A. C. E. mixture. In the female cases the percentage of danger cases was nearly twice that of danger cases under ether, more than twice that of danger cases under gas and ether, and nearly twice that of danger cases under the A. C. E. mixture. Minor complications too are notably more frequent in males than in females when ether is administered.

Another point of considerable interest is that the administration of chloroform by the towel method shows the highest percentage of complications and the highest danger rates, while the method of giving the drug on lint shows a striking diminution in both the complication and danger rate. These statistics also support previous statistics which have been published in showing that the death-rate from chloroform is far greater than the death-rate from other anesthetics. Of the twenty-nine deaths recorded, eighteen were from chloroform, and of these three are considered entirely due to the anesthetic; four to the anesthetic principally, and the patient's condition secondarily. Of the others there is either doubt as to the cause of the accident, or the death was distinctly due more to the condition of the patient than to the anesthetic. It is also of interest to note that of the deaths under ether, not one is held to be due entirely to the anesthetic, and the conclusion is reached that danger to life under the use of chloroform is greater than when other anesthetics are employed.

We publish in our Progress columns this month the conclusions that have been reached by the committee that we have named, as we believe that they are of very great importance. We hope that this committee, or a similar one, will continue the investigations, and that they will obtain a larger number of statistics dealing with the effect produced by ether as well as chloroform, because, as we have already pointed out, there is a relative lack, numerically, of cases of etherization as compared with those which took the more powerful and lethal drugs.

It is not to be forgotten that many physicians and surgeons are firmly convinced that while chloroform produces a greater number of accidents on the table than does ether, that ether, on the other hand, is very frequently responsible for secondary after-complications occurring when the patient has entirely recovered from the immediate effects of the anesthetic, and perhaps as long as forty-eight or seventy-two hours after the operation. These symptoms are usually supposed to be associated with the lungs or the kidneys. Personally we believe that in many instances when congestion of the lungs, or urinary suppression, occurs, the difficulty is due to cold and exposure during the operation, combined with the shock, and that the anesthetic is not largely responsible for it. But as we have said, many believe that ether is responsible for these complications in some instances.

In the report which we have named, Professor Ramsey, who is the professor of chemistry in University College, London, publishes a report upon the samples of the anesthetics employed in cases displaying dangerous symptoms; and Lawrie, of Hyderabad, sends a report of 1521 cases of chloroformization in India. As Colonel Lawrie has

now reported more than 30,000 administrations of chloroform, any statistics compiled by him must possess extraordinary importance and interest.

There is one more point in connection with these statistics which we think is worthy of emphasis. To quote *The Lancet* again, the frequency with which cases of danger occurred in persons in good condition was as follows: With chloroform, one in every 133 administrations; with ether, one in every 654 administrations; and with gas and ether, one in every 834 administrations—once more emphasizing very strongly the fact that chloroform is the more dangerous drug of the two.

PNEUMONIA FOLLOWING SURGICAL DISEASES.

Though it is possible that the prostration following a serious surgical operation may predispose the individual to an attack of ordinary epidemic or endemic pneumonia, this fact will not account for the comparative frequency with which inflammation of the lungs complicates the convalescence of operative cases, particularly such as have been subjected to intraperitoneal manipulations.

Kelling, quoted in *Schmidt's Jahrbücher*, 1901, Heft 1, notes that this postoperative pneumonia is most likely to follow operations on the stomach. The first symptoms develop in from nineteen to twenty-four hours after operation. He believes the cause can be traced to infection occurring during the course of the operation. This infection comes probably from the air which is often sucked in and blown out of the belly cavity with each respiratory movement, necessarily carrying with it directly into the peritoneum an enormous number of germs. Also, as an etiological factor, the cooling effect of this air upon the diaphragm must be considered.

Having explained the development of pneumonia after stomach operations on this basis, Kelling takes every precaution against moving currents of air during an operation. He keeps the operating-room hot, the floor is made moist, and by means of gauze he prevents aspiration of air into the subdiaphragmatic space. He has thus greatly diminished the number of postoperative pneumonias in his service.

Though it is true that pneumonias following operations are due to infection, and that this complication is particularly likely to occur following operations on the stomach, the commonly accepted explanation is dependent on the fact that through limitations of the breathing motions incident to local peritoneal congestion and pain, the ventilation of the lungs is incomplete; hence the circulation is retarded and congestions and exudations encouraged. Moreover, Souques reports cases which seem to show that after severe contusion of the lungs, pneumonia may occur in parts of these organs not directly affected by such contusion. This can be attributed to reflex from the pneumogastric nerve causing paralytic dilatation of the pulmonary vascular system.

Pneumonia following extraperitoneal surgical operations is nearly always embolic. When it is distinctly septic the prognosis is extremely grave.

THE TREATMENT OF SYPHILIS.

There are certain teachings in the treatment of syphilis which are universally accepted. Among these may be mentioned the use of mercury in the secondary period, mercury and potassium iodide in the tertiary period, and the need of a treatment continued for from two to four years. It is generally believed, perhaps mainly because of Fournier's writings upon this subject, that late recurrences of syphilis are due to inadequate treatment in the secondary and early tertiary stages of the disease. It is a very common practice to gauge the dose of mercury appropriate to each individual by the quantity of the drug which is found by one trial to produce slight signs of ptyalism; one-half of this quantity is given daily, with a number of periods of rest, for two years. As to the period at which the mercury treatment should begin there is much difference of opinion. Perhaps the majority of men most experienced favor waiting until the diagnosis is absolutely confirmed by the appearance of the secondary symptoms. Among these is Blaschko, who holds that mercury acts as an antitoxin, paralyzing and neutralizing the poisonous products of the syphilitic virus. This action is especially well shown in those cases of syphilitic intoxication characterized by heaviness, pain in the limbs, night sweats, sleeplessness, headache, and general prostration. Even after a single injection of one or two inunctions these symptoms will disappear as by magic. It is obvious that the virus is not directly acted upon by the mercury. The drug when used in the treatment of syphilis

does not prove effective because of its bactericidal powers; nor do medicaments introduced into the system become equally distributed throughout all its parts. Drugs exhibit an elective affinity for certain parts of the organism, and it seems clear that mercury exhibits such an affinity for the proliferations caused by syphilis.

Blaschko, in considering the effect of treatment upon the developments of late tertiaries, calls attention to Groen's statistics, which seem to prove that in Norway, where cases of syphilis are not treated by mercury, the percentage of tertiary cases is not greater than that in other European countries. Moreover, it seems fairly well demonstrated that tabes and progressive paralysis are most common in the very class which is most carefully and conscientiously treated during the secondary and early tertiary periods of syphilis.

In Dalmatia and Bosnia, where syphilis is extremely common, and where the treatment is greatly neglected, tabes and progressive paralysis are unknown.

These and other similar facts seem to show that the development of late degenerations of the nervous system are dependent rather upon heredity, temperament, and mode of life, than upon the neglect of treatment during the secondary stage of syphilis.

Against this belief there is ranged not only the experience of Fournier, but that of most of the syphilographers of the world, although the influence of heredity in the development of nervous affections cannot be denied.

The importance of a prolonged mercurial treatment in the prevention of spinal and cerebral degenerations is well established.

Blaschko states that mercury is not so well borne by patients who have had no manifestations of the syphilis as it is by those who exhibit symptoms of the disease. This is in a measure true. When the hemoglobin is lowered and the general health impaired by the syphilitic virus, mercury administered in proper doses produces an immediate improvement in the health. It is, however, by no means proved that a person with syphilis will exhibit more tolerance toward mercury than a person who has not the disease.

It is also true that if mercury be continued in full doses after all symptoms have disappeared, the blood has returned to normal, and the general health of the patient has been restored, ultimately there will be impairment in health and loss of weight, together with a diminution of the hemoglobin. It is evident then that mercury can be given in too large doses and can be continued too long.

The points most difficult for the physician to decide in treatment of syphilis are the proper choice of the mercuric preparation, the dose suitable to the individual, and the appropriate interval of rest.

The two best indices as to the quantity of mercury which should be given in an individual case are afforded by an examination of the blood and by taking the body weight. Syphilis produces a diminution of the hemoglobin, often very marked, but sometimes inappreciable. Mercury in proper doses will bring the blood to its normal; in injudicious quantities it will always reduce the body weight. The patient who, under a mercuric course, has exhibited no manifestations of the disease but has steadily lost weight and condition, is probably suffering because he has received an overdose of the drug.

The need of intervals of rest in the treatment of syphilis is now well recognized, and syphilographers have devised a set formula. Thus, the patient will be directed to take the mercury for three out of every four weeks in the month, and to continue this treatment for one year. During the next year the intervals of rest will be somewhat increased. Such a formulation can never be of practical use.

The dose of mercury for each individual is that which will cause the entire disappearance of all syphilitic symptoms and which will keep him in good general health.

Even more important than the proper dosage of mercury is the attention to be paid to nutrition and to the general health. The belief that syphilis is a curable disease, and that it is surely and permanently curable in a large percentage of cases, is justified by experience. Experience also teaches that a wisely directed and long-continued treatment affords the best assurance against late recurrences. It also shows, however, that such a cure cannot counteract the effects of alcoholism or sexual excess, and that patients with such addictions are likely to develop spinal degenerations even when the treatment is most faithfully adhered to and is long continued.

Of the various methods of administering mercury, inunction is the safest and most effective. The method by hypodermic injection has never become widely popular in either England or America. Mouth administration remains the most popular method

because it is the easiest. Of the drugs employed in this latter method, mercurous iodide, yellow, mercury with chalk, and corrosive sublimate are the popular preparations.

The objection to the mouth administration of mercury is based on the circumstances that the quantity taken into the stomach by no means represents the quantity circulating in the system, and that a gastroenteritis excited by these drugs not only weakens the patient and lessens his resistance, but materially interferes with the proper absorption of the mercurial preparation.

Reports on Therapeutic Progress

THE TREATMENT OF TUBERCULOSIS BY SODIUM CINNAMATE.

The *Philadelphia Medical Journal* of December 1, 1900, contains an article on this subject by Dr. MANN. The treatment Dr. Mann has used in these cases, and is still using, consists of intravenous injection of solutions of sodium cinnamate, or hetol, as it is called, and he has followed very closely in all details the directions given by Professor Landerer.

Beginning with $\frac{1}{100}$ to $\frac{1}{80}$ of a grain, the dose is gradually increased to $\frac{1}{4}$ or $\frac{1}{3}$ of a grain, which should rarely be exceeded. The injections are repeated every other day. It is very important to use only perfectly pure preparations, such as are made synthetically by certain German chemical houses.

The technique of the injections is very simple, the main point being to secure perfect asepsis. The hands of the operator, the skin about the point of injection, and the instruments, should all be carefully sterilized. Usually the median basilic or cephalic vein, one or the other arm, is selected for the operation. By encircling the arm some distance above the elbow by an elastic bandage, the vein is rendered prominent and its walls become tense. The needle is then plunged slantingly through the skin and wall of the vein at once. If immediately after the injection and before withdrawing the needle the bandage is loosened, and the arm raised up, there is not a drop of blood, as a rule, when the needle is drawn out. The skin about the point of injection is rubbed with ether, then with alcohol. The needle, the point of which should be fine and kept well polished, and which ought to be used for no other purpose, is placed in strong alcohol for twenty minutes, before and after using, and the same liquid should be forced through it. Boiling can then be dispensed with, which is an advantage, as it corrodes the point and causes it to pass through the tissues with difficulty. Dr. Mann has made use of this technique in over 800 injections, and has never had the slightest local infection. Indeed, in one of his cases over 100 injections were made in a single spot less than half an inch square, without a trace of visible effect remaining. An aseptic dressing should be kept over the site of the puncture for a few hours.

The duration of treatment naturally varies considerably. Light cases and those with a purely tubercular infection require a very much shorter period of treatment and furnish a much larger proportion of favorable results than patients with wide-spread disease, fever, cavities, and multiple infections.

There are several side effects of the sodium-cinnamate treatment that are worthy of mention, partly because of the extremely interesting bearing on the question of the origin of uric acid in the blood.

In a recent address by Professor Ewald before the Medical Society of Berlin, in which he presented at length a report of his use of sodium cinnamate, he called attention to a marked drowsiness that he observed in many of the patients undergoing this treatment. Landerer stated that he had not observed this symptom, and thought that perhaps Ewald's doses had been too large. Dr. Mann has noticed this symptom in quite a number of his patients, and can produce it at will by increasing the size of the dose. It does not appear until ten or twelve hours after the injection, and usually with moderate dosage disappears in twenty-four to thirty hours. He thinks it indicates a dose that is rather too large, and it corresponds in the time of its occurrence with the period of diminution in the number of leucocytes in the blood and the probable destruction of many of them. The sensation is exactly the same as the so-called uric-acid fatigue, and according to Horbaczewski's theory of the formation of uric acid from the nucleins of broken-down leucocytes, its pathogenesis would be comprehensible. A number of patients noticed and reported to him that they slept very soundly and long while they were taking the injections, more so than usual, and one found it harder to sleep each time the injections were stopped for a period.

In several patients there occurred repeated

attacks of acute muscular rheumatism, which were absent during the long intervals of treatment, and seemed to have a relation with the injections, due perhaps to the same chain of causes as the drowsiness. In one patient with chronic gout the affected joints became painful two or three weeks after the treatment was begun on more than one occasion.

Generous doses, especially in severe and febrile cases, are apt to be followed within twenty-four hours by a slight rise in temperature. In Dr. Mann's experience it has usually not exceeded a degree or a degree and a half; but by keeping accurate records of the daily temperature curve it could be very plainly made out in several cases.

In his cases he has not noticed any decided tendency in the drug to cause hemorrhages. The moderate inflammatory hyperemia observed in Landerer's experiments leads one to expect small leakages of blood, but he has not observed these or larger bleedings, except in cases that had been having them before the treatment was begun.

While Dr. Mann is a firm believer in the great value of an out-of-door life, in rest, and in the advantages, undoubtedly very considerable, of certain climates, especially the high and dry ones, in the treatment of patients with tuberculosis, still he recognizes the fact that in many cases all these means are not enough, and we want every possible help we can get in addition.

Dr. Mann's experience with sodium cinnamate in the treatment of consumption has given him favorable impressions of its effects. He thinks he has had good evidence that it will quicken to a marked extent the healing processes, when they are sluggish or altogether inactive, in some, though not in all, of the cases. Most of his experience in its use has been with rather severe cases, and the art of prognosis is here proverbially difficult, yet it seems to him that the results have been very encouraging—that is, better than they would have been without it—and he will continue to use it in addition to the other good methods that are available and that ought not to be neglected in any case.

THE DISEASES OF THE BRONCHIAL GLANDS.

In the *Philadelphia Medical Journal* of December 1, 1900, HALL in an exhaustive paper on this theme expresses the belief that the diagnosis of this disease, though often obscure, is sufficiently clear, by inference at least, to direct us as to the treatment. In tuberculous and bronchopneumonic enlargements, and those following measles and whooping cough, cod-liver oil is the remedy above all to which we must turn, with the hope of influencing these glands as we do those of the neck in scrofulous enlargements. The syrup of iodide of iron should be given if anemia exists. The general tonic and roborant measures indicated in early tuberculosis are of the utmost value here. Such treatment should be long continued, for the danger of development of tuberculous meningitis has been shown to be a grave one. Until the child has fully regained his health and the weight normal for his age, he should be carefully watched, that nothing avoidable may be allowed to interfere with his general health.

Simon and many English physicians insist that counter-irritation with iodine is of great value, while arsenic is given internally for its resolvent effect. Creosote is stated by Voelcker to be of great value. Spengler believes in the use of tuberculin in cases of tuberculosis of the glands if there be no mixed infection. This has not yet met with general approval. For the syphilitic cases the usual iodide treatment should be vigorously pushed.

For the enlargements secondary to malignant growths we can do nothing, and adenitis found as a part of the various blood diseases calls for no measures beyond those otherwise indicated.

In case suppuration takes place, the pus lies near the surface of the chest; it may be possible to evacuate it by aspiration or incision, although cases are very few in which such a line has been followed. Dr. Hall saw Whitney aspirate in his case unsuccessfully, the glands probably being still too firm to yield fluid, although subsequently the pus was evacuated freely through rupture into the esophagus—a brilliant diagnosis and a happy result. In a case of his own, seen also by Drs. Elsner, Parkhill, and Bagot, in which the diagnosis yet lies between sarcoma and tuberculosis, probably originating in the mediastinal glands, four exploratory punctures yielded nothing. Some three months subsequently, after the case had passed from his observation, the swelling at the second left interspace ruptured and discharged pus, so that he now inclines to the diagnosis of tuberculous glands. In this case numbness extended down the left arm, suggesting pres-

sure upon the brachial plexus by communicating glands, as in Eskridge's cases. Edema of the feet, not accounted for either by cardiac, renal, or hepatic trouble, nor by anemia, suggested a possible pressure of enlarged glands upon the inferior vena cava, which lessened somewhat under a tonic treatment directed to the possibility of tuberculosis. This case is rich in suggestions rather than in positive results.

Voelcker recommends free exploration by resection of ribs and the use of the needle, although the results of this treatment have not been at all brilliant, all dying shortly after its adoption. Since, however, these measures have been used where extensive cavity formation and even gangrene of lungs have been diagnosed, we should not be discouraged. His suggestion that gangrene in these cases tends to extend downward, so that the operation should be a low one in case of doubt, seems to be sound.

Sudden dyspnea, not otherwise accounted for, especially in a child who, from previous disease involving the respiratory tract, may be suspected of having breaking-down bronchial glands, would call for the same vigorous measures as if a foreign body had been inhaled. Petersen's case, already quoted, is the only one within Hall's knowledge, but in spite of the often rapidly fatal result of the sloughing of a gland into the air-passages, successful removal may follow correct diagnosis in case the patient lives long enough for the attempt.

THE SYMPTOMS AND TREATMENT OF HYPERACIDITY OF THE STOMACH.

In the *Boston Medical and Surgical Journal* of November 29, 1900, HEWES tells us that the treatment of this clinical condition of hyperacidity of the stomach is based upon a knowledge of the cause and its effects which we gain by an experimental study of the condition. In these cases the exciting cause, the excess of acid, acts to produce disturbance and symptoms in several ways. In the first place it may irritate the membrane of the organ, causing pain or distress, peristaltic unrest, regurgitation, heartburn, pyrosis. It inhibits the digestion of starches by the ptyalin of saliva, and may then tend to the accumulation of starch in the stomach. It acts upon the motor processes of the stomach, often diminishing the activity, even causing spasmodic contraction of the pylorus, so that retarded emptying or stasis of the contents may result. All these effects, the irritation of the acid, the affection of the motility, the retardation of starch digestion, may have results in causing symptoms, the distress, eructations, heartburn, vomiting. The affection of motility may cause stasis of contents, when dilatation or fermentation by yeast or sarcinæ may occur.

In addition to and through those specific disturbances of function, the disorder has detrimental results to the body generally. As a result of the distress accompanying the act of digestion the patient eats less food than necessary. This, with the nervous influence resulting from the irritation and disturbance, affects the nutrition of the body. As a result the health is impaired, the nerve tone affected, and the stomach made even less able to gain upon its disease. The irritation of the acidity also has disturbing effects upon the nervous system which doubtless tend to perpetuate the increased secretion of the stomach and the intolerance of food.

In addition to the above specific source or sources of disturbance or symptoms in these cases, we have to consider still another element which may be present as a pathological condition influencing the disorder, namely, the relative hyperesthesia of the patient. A close study of our case reveals the fact that the severity of disturbance of function or symptoms is not proportional to the quantity of acid present. Cases with great excess may have symptoms milder than those with very slight excess. We not uncommonly see cases of clinical hyperacidity yielding to treatment of this affection in which the quantity of acid is normal for the average individual. Furthermore, in treating certain cases of hyperacidity we find that after cure of all disorders the quantity of acid remains the same or above the normal limits.

These facts suggest that in certain cases increased or abnormal susceptibility of the patient to the secreted acid is a causative element in the case. This is, perhaps, the case with those individuals who suffer with normal amounts of acid, and probably with those who, when cured, still retain the excess of acid. These cases might better be termed gastric hyperesthesia. In treating them, by building them up, or by neutralizing the acid which tends to maintain the sensitiveness, we relieve the hyperesthesia and stop the symptoms. It is probable that this element of hyperesthesia enters to some extent together with the acid excess as a factor in the dis-

turbance of many of the cases. And thus in developing our method of treatment we must bear in mind these two causal conditions—the excess of acid with its irritation and its influence upon the motor and digestive functions of the stomach, and the possible hyperesthesia of the patient having its origin in his nutritional or nervous condition. In this treatment we attack our case along both lines. We aim (1) to reduce the acidity of the contents, and (2) to increase the resistance of the patient to the acid—that is, to improve the nutrition and nerve tone. Practically we find that an attack along either line is beneficial for both purposes.

To reduce the acidity of the contents, our first aim in the treatment, we may, as a first resort, administer substances which combine with or neutralize the acid. Such substances are, first, proteid food substances, which combine with large quantities of acid, and secondly, alkalies, which neutralize the acid present. This is a simple method and works in a large majority of cases very satisfactorily. The excess of acid can be perfectly controlled by the food with small quantities of alkalies, provided these substances are administered in the proper manner and at the proper time. In some cases this regular control of the acidity leads finally to a lessened secretion. In almost all cases it does away with irritation and disposes of the disturbance due to the acid excess and the symptoms of these. With the improved function which follows this treatment, and the full diet which is part of it, the system tends to regain its normal tone and the hyperesthesia of poor condition is controlled.

The system of treatment which Dr. Hewes has used in most cases is built up upon these lines: The patient is given a diet of a calorie worth sufficient for the weight and conditions containing as high proportion of proteid foods as comfortable for the patient. (In his experience, the average patient with stomach trouble is eating less than half of a sufficient diet.) This diet is separated into six daily meals, the constituents of each meal, with some alternative choice, being prescribed. The treatment tends to use up the acid secreted and facilitates the motor function. Starches should be limited, and of carbohydrate foods, sugars or predigested starches, dextrinized flours, as Avencia flour or Horlick's food, used as much as possible, since starch digestion in the stomach is impeded in these cases. For all symptoms of disorder, as distress or eructations, some proteid, as a raw egg, is to be taken. An alkali, bicarbonate of soda in half-teaspoonful doses, or fifteen grains of magnesia hydrate, may be taken in addition to food, or in place of it, for the relief of symptoms. In some cases large amounts of alkali, three drachms bicarbonate of soda, must be used in the twenty-four hours. Three pints of water is prescribed to be taken in small amounts at a time throughout the day. In addition, general rules in regard to baths, exercise, the bowels, the work, and general manner of living are laid down in writing. Debility must be treated by tonics. Nux vomica is a most useful agent here to improve the tone of the system, and thus also perhaps the motor capacity of the stomach. Where anemia is present by blood tests iron should be given. Chlorosis is not infrequently associated with hyperacidity. After an administration of iron with the regular régime for a few weeks these cases as a rule lose all symptoms of hyperacidity, even with cessation of treatment. There is little doubt that it is a similar improvement in nutrition which accompanies the increased diet, and good régime and freedom from nerve disturbance, which insure the cure in a majority of all the cases.

The exact details of treatment of course vary with the cases. Many cases of hyperacidity are intermittent or paroxysmal. These cases it is necessary to treat locally only during the period of attack, while a general method of régime should be employed constantly to prevent recurrence. In some cases the acidity is only after one meal, as, for example, dinner. This must be borne in mind in the determining of the diagnosis as well as in the treatment. We must get the contents at the period of symptoms.

This treatment gives excellent results in the great majority of cases. In some relief is immediate, and with the return of normal tone it is possible after a month or two to drop special treatment. In a majority of these cases the acidity is found in time to be normal; in others the acidity remains as at first, though the symptoms disappear. In a certain proportion of cases the treatment must be followed in a general way permanently. It is impossible to collect accurate statistics of cure from an out-patient clinic; but it is certainly a rare exception to see a case of hyperacidity which does not yield to this treatment when properly applied. In Dr. Hewes's records he finds less than ten per cent of cases returned as not relieved

after trial of this simple treatment of régime, diet, and alkalies. In these obstinate cases lavage is often a useful adjunct to treatment. After a few weeks of lavage combined with a very special diet worked out by experience with the case, the patient is raised to the regular régime. In these cases it is often necessary to feed small amounts frequently and to use concentrated food substances, as the Leuke-Rosenthal meat solution, Mosquera beef meal, somatose, which have a high capacity for combination with hydrochloric acid. Such cases are, however, exceptional. As a rule the diet of easily digested or liquid foods is the least useful one that can be chosen. In some obstinate cases Dr. Hewes has used nitrate of silver for internal treatment and for lavage with success.

It is well known that our cases of hyperacidity are of two types: one in which a neurosis or functional hyperactivity appears to be the fundamental element in the case, and one in which a marked increase in the gland tubules and oxyntic cells of the gastric membrane is present as an underlying pathological condition. This latter condition, a form of chronic gastritis, the gastritis acida of Cohnheim, is diagnosed by the presence of fragments of the pathological membrane in the stomach washings. It is said by some observers (Hemmeter) that fifty per cent of the cases of hyperchlorhydria have some such hyperplasia of the tubular structures. Typical cases of this condition are, however, much less common, and such fragments are, in Dr. Hewes's experience, found in a much less percentage of cases by ordinary methods of examination. When the condition is obstinate, and does not tolerate the regular treatment, it is well to investigate specially as to whether the case is one of this gastritis acida. For such cases, and indeed for all cases proving obstinate to the proteid treatment, the method of continuous treatment upon low proteid diet should be tried.

REPORT OF THE ANESTHETICS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

This valuable report is referred to in our editorial columns, and is taken from the London *Lancet* of January 26, 1901. The conclusions reached are as follows:

Relative Safety of the Various Anesthetics.—(1) The relative safety of the various anesthetics may be gathered from the statistical tables in the report. When only those cases of danger which were held to be due entirely to the anesthetic are considered, the following instructive figures are obtained, further emphasizing the danger of chloroform as contrasted with ether. Cases of danger (including deaths) considered to be entirely due to the anesthetic: under chloroform, 78, giving a danger rate of 0.582 per cent; under the A. C. E. mixture, 1, giving a danger rate of 0.147 per cent; under mixtures of chloroform and ether, 2, giving a danger rate of 0.478 per cent; under the A. C. E. mixture followed by chloroform, 1, giving a danger rate of 2.2 per cent; under chloroform followed by mixtures of alcohol, chloroform, and ether, 1, giving a danger rate of 0.36 per cent; under ether, 2, giving a danger rate of 0.065 per cent; under "gas and ether," 3, giving a danger rate of 0.096 per cent; under ether preceded by chlorofom, 1, giving a danger rate of 0.480 per cent; under ether preceded by the A. C. E. mixture, 0; under the chloroform group of anesthetics (addition of the first six headings above), 88, giving a danger rate of 0.584 per cent; and under the ether group of anesthetics (addition of the last four headings above), 6, giving a danger rate of 0.085 per cent. (2) Although (excluding nitrous oxide) ether may be accepted as the safest routine agent, certain circumstances determined by the state of the patient, the nature of the operation, etc., may render the use of some other anesthetic or combination of anesthetics both safer and easier.

The Best Methods of Administration.—(3) No method of administration of chloroform is free from danger, but an examination of the complicated cases appears to show that the occurrence of danger depends largely upon the administrator who employs any particular method. (4) No conclusion from the evidence before the committee as to the best method of administration of ether and "gas and ether" is possible. (5) The data warrant the conclusion that the A. C. E. mixture should not be given from a closed inhaler—*e.g.*, Clover's. (6) This conclusion applies to all mixtures containing chloroform.

Best Methods of Restoration.—(7) The subcommittee are unable from the material at their disposal to draw any conclusion upon this point.

Clinical Evidence Regarding Anesthetics Generally.—(8) Anesthetics are more commonly associated with complications and dangers in males than in females. (9) Excluding in-

fancy, and taking anesthetics collectively, the complications and dangers of anesthesia increase *pari passu* with advancing age. (10) Anesthetics are notably more dangerous in proportion as the gravity of the patient's state increases. (11) Danger to life is especially likely to be incurred at early periods of the administration of anesthetics, while the tendency to less grave complications increases directly with the duration of the anesthesia. (12) The tendency for complications, dangerous and otherwise, to occur increases *pari passu* with the gravity of the operation.

Clinical Evidence Regarding Chloroform.—(13) Chloroform is about twice as dangerous in males as in females. (14) Chloroform is most dangerous during early infancy and after thirty years of age; least so from ten to thirty years of age. (15) In conditions of good health chloroform is very much more dangerous than other anesthetics. In grave conditions chloroform still remains the least safe anesthetic, but the disparity between it and other anesthetics is far less marked than in health. (16) When danger occurs under chloroform, whatever its exact nature may be, there is abundant evidence that in a large proportion of cases the symptoms that are observed are those of primary circulatory failure. (17) Imperfect anesthesia is the cause of a large number of cases of danger under chloroform. (18) Vomiting during anesthesia, which may lead to danger, seems to be more frequent under chloroform than under other anesthetics. (19) Struggling is very much more frequent in the complicated cases under chloroform than in the uncomplicated, and this phenomenon must therefore be regarded as a source of grave danger under chloroform. (20) The tendency for circulatory complications to appear increases with the relative amount of chloroform in the anesthetic employed. (21) While vomiting is more common after administrations of ether, severe and prolonged vomiting is more common when chloroform has been used. (22) Circulatory depression following anesthetics is more common after chloroform than after ether. (23) While the respiratory complications of anesthesia as a whole are of equal frequency under the ether and chloroform groups respectively, yet those that occur under ether are mostly of a trifling and transitory nature, while those that occur under chloroform are more grave and persistent.

Clinical Evidence Regarding Ether.—(24) Under ether the complications of anesthesia are more frequent with males than with females, but with the former they are generally slight, ether being rather more dangerous with females than with males. (25) Ether, where employed throughout or preceded by nitrous oxide gas or by the A. C. E. mixture, is singularly free from danger in healthy patients. (26) Minor troubles in administration due to laryngeal irritation and increased secretion are more common under ether and "gas and ether" than under chloroform and its mixtures. (27) Struggling occurs more frequently with ether when given alone than with other anesthetics, but it rarely leads to danger. (28) After-vomiting is more common with ether than with other anesthetics, but it is usually transient. (29) Bronchitis is much more common as an after-effect of ether than of chloroform. (30) With "gas and ether," as with ether, dangers are more common in females, although complications are more frequent in males.

Clinical Evidence Regarding Mixtures and Successions of Anesthetics.—(31) The A. C. E. mixture in most of the statistical tables holds an intermediate position between chloroform and ether. (32) The A. C. E. mixture is more dangerous in males than in females, but not to such a marked degree as is chloroform. (33) The administration of ether antecedent to chloroform does not abolish the possibility of chloroform dangers. (34) The various mixtures and successions of anesthetics were recorded too frequently to justify definite conclusions.

General Conclusion.—(35) From the evidence before the subcommittee, they are convinced that by far the most important factor in the safe administration of anesthetics is the experience which has been acquired by the administrator. In many cases the anesthetization completely transcends the operation in gravity and importance, and to insure success, particularly in these cases, it is absolutely essential that an anesthetist of large experience should conduct the administration.

TREATMENT OF ACUTE DYSENTERY, WITH SPECIAL REFERENCE TO USE OF MAGNESIUM SULPHATE.

Dr. W. J. CRUIKSHANK said before the Kings County Medical Association, so we are told in the *Journal of the American Med-*

ical Association of January 5, 1901, that from January till December, 1897, 97,000 persons had been stricken with dysentery in Japan, and 70,000 had died. In one province there had occurred, in 1890, 801 cases with 225 deaths, and in 1891, 8390 cases with 2163 deaths, or a mortality of a little over twenty-six per cent. Every country in Europe has paid a heavy tribute to dysentery. In the tropics this disease destroys more lives than cholera, and has been more fatal to armies than powder and shot. In France dysentery is accountable for one-twentieth of the total mortality in the army, and in Algeria it represents one-fifth of the total mortality. In epidemics occurring in temperate climates the mortality varies from seven to fifteen per cent. In tropical epidemic dysentery, the mortality is between twenty and thirty per cent, although even so high a mortality as sixty or seventy per cent has been noted in certain epidemics. Military experience in the tropics shows that acclimatization has no effect on dysentery. According to Pepper, this disease was responsible for the death of 300,000 of the soldiers during our civil war. The recent official reports from the United States army and navy do not give detailed information regarding dysentery during the late war with Spain. In the year 1898 there had been 368 deaths from dysentery in Greater New York, and in 1899, 267 deaths. The preponderance of evidence seems to be in favor of the amebic theory as to the etiology of this disease. Bacteriologists are agreed that dysentery is the result of microbic infection, but opinion is divided as to whether it is the result of a specific microorganism or of several bacteria.

The speaker expressed the opinion that the so called varieties of dysentery are chiefly founded on mistaken ideas regarding the etiology and pathology of the disease. Dysentery has been frequently confounded with simple diarrhea and enteritis. One of the most misleading of these so-called varieties is that designated as malarial dysentery. Dysentery is one disease, and one only, whether observed in the tropics as endemic or in the temperate regions as sporadic. Even so careful and conservative a writer as Flexner has expressed the opinion that the conclusions of bacteriologists which led to the establishment of various types of the disease might not be strictly in accordance with fact. He is of the opinion that the causative agent of dysentery might not vary in these different types.

The reader of the paper expressed the belief that the underlying principle of treatment is purgation, in spite of the many statements of medical authorities to the contrary. The remedy he recommends is magnesium sulphate used in such a way as to secure depletion of the vessels, rather than purgation. He believes that this remedy is as nearly a specific for dysentery as quinine is in malaria, or mercury and potassium iodide are in syphilis. In all cases of acute dysentery, from the beginning of the attack until there is a subsidence of the symptoms, it should be administered in drachm doses every two hours, dissolved in a very little water and mixed with a little aromatic sulphuric acid. If tympanites is present, it will rapidly subside under this treatment. At the end of forty-eight hours the stools will become biliary and feculent in the vast majority of cases. When the stools have become nearly normal the medicine should be gradually withdrawn. The average duration of the disease under such treatment is from three to seven days. The practitioner is often tempted in these cases to give a hypodermic injection of morphine to relieve the pain, but Cruikshank's experience has taught him that almost as great relief follows the use of the magnesium sulphate. By stimulating the naturally sluggish liver to greater activity the sulphate increases the biliary secretion, and in this way acts somewhat antiseptically, he believes, though he well knows that this is a mooted question in physiology. This remedy, by abstracting water from the tissues and pouring it into the intestine, depletes the mucous membrane, diminishes the inflammatory process, and rids the intestinal canal of the infectious material. The physiological action of this medicine has been known and appreciated for years by gynecologists and surgeons. Dr. Cruikshank said that his attention has been directed to this method of treatment by a case which he treated some years ago, according to the plan then in vogue—that is, the alternate administration of sulphate of magnesium and opium. He had noted the great improvement in all the symptoms following the use of the sulphate, and the return of the dysenteric symptoms when opium and bismuth had been given, but he did not have the courage to depart from this approved plan of treatment, and on calling in eminent counsel it had been indorsed as the proper one. The patient died after ten days.

The author gave copious citations from a

number of medical authors who had found magnesium sulphate exceedingly useful, and vastly superior to the other remedies commonly employed. His conclusions are: (1) Dysentery is a disease of great gravity; (2) it is both contagious and infectious; (3) it is caused by the introduction into the system through food and drink, and also through the air, of a specific microorganism the identity of which seems still in doubt; (4) dysentery is one disease in whatever latitude it is found, and the only varieties are those based on the intensity of the morbid process; (5) the therapeutic agents suggested for the treatment of acute dysentery are useless and often harmful, and magnesium sulphate acts as a specific.

THERAPEUTIC NIHILISM.

The *Journal of the American Medical Association* of January 5, 1901, points out editorially that optimism, not pessimism, is needed in medicine; not, however, the optimism that takes up each new fad to the exclusion of old and tried measures, but the kind that begets hopefulness and confidence. There is a tendency, among a few, to therapeutic nihilism that is to be regretted. He who has watched a huge cardiac edema subside under the intelligent administration of digitalis, or who has seen an angry tertiary syphilide fade away under full doses of potassium iodide, or, above all, who has seen the threatening false membrane of diphtheria shrivel and fall after the use of antitoxin, can never honestly express a disbelief in the benefits of modern therapeutics. Those who are yet opposing the use of antitoxin argue chiefly from *a priori* reasoning. The men who are treating diphtheria with antitoxin, and who are old enough to compare their own results under the old means with those since they began to employ the new, have another tale to tell. The therapeutic nihilist has no place in modern medicine, now the science of therapeutics is becoming thoroughly rational. Profession of disbelief in measures for aiding in healing of disease is a confession of personal failure in practice. The fault is in the man, and not in the method. Many diseases yet baffle us, and many of our agents are not yet perfect, but the spirit that will lead to a better state of affairs is only that of hopefulness and of belief in the capacity of medical science to grow until more and more diseases are conquered.

HOME BATHING IN TYPHOID FEVER.

In the *Medical News* of January 5, 1901, Dr. SIMON BARUCH describes certain hydropathic methods by means of which patients suffering from typhoid can be treated for pyrexia without the necessity of a bath tub. He insists that cold water, besides mechanically reducing the temperature by actual abstraction of heat, stimulates the circulation. This second purpose, however, of cold applications is only accomplished if friction accompanies the use of cold. The presence of the toxins of typhoid fever in the circulation relaxes the arterioles all over the circulation and so makes harder work for the heart. The application of cold then helps the circulation by toning the arterioles, thus making the blood paths narrower and the heart's pumping easier. Clinically this result cannot be observed by the disappearance of cyanotic conditions after the bath. Typhoid patients always look better after the bath; when they do not it is because some element in the technique has been neglected. The effect of the bath on the kidneys is like a summer shower on the parched plants at the end of a heated spell. Toxic materials have gathered as sources of irritation, just as dust gathers on the leaves of the plants, and when the circulation is toned up the narrowing of the lumen of the capillaries in the kidney sends the blood more rapidly through them, flushing them out and making diuresis more complete and efficient.

Reaction must follow cold bathing always, or the purpose of the bath is rendered abortive. We might think that emphasis need not be placed on this point in our day. Consultation of some of the text-books, however, shows what mistaken notions may be conveyed by ill-given directions. Lauder Brunton, the distinguished English therapeutist, in his text-book of therapeutics, edition of 1898, says that when the patient's temperature reaches a certain point he should be placed in the bath and left there until his temperature comes down. When he is first put in, the temperature of the water should be about 65° F., and this may be reduced by additions of colder water or ice to 40° F. It is no wonder that he concludes his directions with the advice to remove the patient from the bath before his temperature becomes quite normal, because it may sink still lower after the patient is put to bed and symptoms of collapse my ensue. The main purpose of the bathing is neglected if these directions are followed and no fric-

tion is employed during the bath. No wonder under such circumstances that the bath should prove an unpopular remedy.

The use of rubber tubing through which cold water is allowed to flow is usually a mistake. It does produce local lowering of the temperature, but absolutely without any compensatory stimulation. After its application the skin will be found blue and pallid. For nearly the same reason sponge-baths, as they are usually given, are objectionable. The application of cold water in this way does lower the temperature, but it fails to produce any other good effect. Remedies for fever, it should be borne in mind, must be antifebrile as well as antipyretic. Antifebrile therapeusis modifies all the symptoms produced by the fever, especially the relaxation and tendency to exhaustion. Antipyretics only reduce the temperature, without affecting other symptoms of the fever. Above all, remedies must encourage the elimination of toxins from the circulation. This is best accomplished by general stimulation that makes every organ do its work and so arouses the reactive vitality.

Patients whose temperatures are above 102.5° F. should be rubbed with a wash cloth wrung out in cold water. As soon as the patient shows any signs of chilliness that are not relieved by the friction, the rubbing should cease. When his temperature reaches the same point as before, water five degrees colder in temperature should be employed and more friction exercised. After this a compress wrung out in cool water may be placed over the abdomen. This should be carefully covered with flannel and its application overseen with the greatest care, and, as a rule, not left to an inexperienced person. If the patient's temperature reaches 103° F., or if nervous symptoms occur, a towel-bath may be given, the patient being covered with a towel, over which cupfuls of cool water are poured, each cupful being well rubbed in, the important thing being to act quickly and stop when the teeth begin to chatter.

When the patient's temperature remains persistently high and bathing facilities are not at hand, the patient may be rubbed with a smooth piece of ice. Each rubbing with ice is followed by a hand-rubbing until the parts glow. Thus successive parts of the body are cooled and rubbed up.

It is important that plenty of cool water should be given to the patient during the course of the fever. Four to six ounces of water at a temperature of 40° may be given whenever desired, and if water is not craved, a regular system of giving draughts of water at certain times should be established. If the system of rubbing and internal administration of cool water be faithfully and regularly kept up, tubs are often unnecessary, even in severe cases. Under this method of treatment it is especially noteworthy that the amount of urine increases very satisfactorily and nephritic symptoms disappear. The system of rubbing is especially of benefit when baths are contraindicated, as in pneumonia or tendencies to hemorrhage.

THE ETIOLOGY AND TREATMENT OF TABES DORSALIS.

The *Medical Record*, in an editorial on this subject in its issue of January 5, 1901, says that in the prophylaxis of tabes dorsalis the most important measure is the avoidance of syphilis, and, in the event of syphilitic infection, the institution of a thorough and systematic treatment. In addition, care should be taken to avoid constitutional debility, increased irritability of the nervous system, and lowering of its resisting power, and, therefore, all of the predisposing influences. When tabes is already developed, the mode of life should be carefully regulated and made simple and quiet, especially excesses of every kind, and overexertion, being avoided. A spirit of hope should be sustained, and the patient not oppressed with the incurability of his disease. Mercurials should be employed only when symptoms of syphilis are still present, when tabes has developed a short time after symptoms of syphilis have been present and effective antisyphilitic treatment has not been employed, and when the clinical picture exhibits peculiarities indicating involvement of the spinal or cerebral meninges, and the possibility of the presence of actual syphilis of the cord cannot be excluded. Perforating ulcer of the foot is sometimes favorably influenced by mercurial treatment. Not much is to be expected from the administration of potassium iodide, although some of the symptoms, such as pain, are occasionally mitigated thereby. Strychnine exerts a favorable influence on weakness of the bladder, the gastric functions, etc. The salts of silver may also be employed.

Symptomatic or palliative treatment may require the administration of such drugs as acetanilid, phenacetine, antipyrin, pyramidon, sodium salicylate, cocaine, ichthyol, or the use of warm baths for the relief of lanci-

nating pains. The application of a flannel bandage, as well as cold or warm affusions and cutaneous stimulation, appears occasionally to exercise a mitigating influence, and a band firmly applied about the abdomen may ameliorate the distressing girdle sense. Relief may sometimes be afforded by suspension or by extension of the spine by stooping forward. Efforts should be made to avert the crises—of which the gastric are most common—by appropriate hygienic and dietetic measures. Rest in bed, with the avoidance of all irritation, and the employment of anodyne measures and remedies for the control of vomiting, will be indicated. In severe cases morphine will be the only remedy that will afford relief. In mild cases nervines, such as bromides, cocaine, antipyrin, or opium, may suffice. They may be advantageously administered by the rectum. If the paroxysms be long-continued, nutrient enemata may be required. In the intervals the prostration should be relieved by rest, nutritive diet, and tonics. For the weakness of the bladder strychnine and ergotin may be employed, preferably injected subcutaneously in the vicinity of the viscus. To neutralize the bodily weakness small doses of arsenic may be administered. This metal, in appropriate doses, together with rest and a suitable diet, constitutes an admirable remedy for nervous, emaciated, and debilitated individuals. Baths and other hydrotherapeutic measures, climatic treatment, electricity, massage, supporting apparatus, stimulants, are measures that, if they have no direct influence upon the tabetic process, favorably influence certain symptoms, as well as the general condition. Paresthesia may be relieved by the faradic brush, motor weakness by the galvanic and the faradic current, atonic weakness of the back by suitable jackets, and pain by stimulation of the skin. For the ataxic movements, so-called, compensatory exercises may be advantageously practiced systematically, for the purpose of both education and exercise.

A STUDY OF EIGHTY-ONE CASES OPERATED UPON UNDER ANALGESIA OBTAINED BY SUBARACHNOID SPINAL COCAINIZATION.

Dr. FOWLER, of Brooklyn, gives in the *Medical News* of January 5, 1901, his views as gained from practical experience from this method of using these injections. His own cases are selected ones. Cardiac, renal, and pulmonary lesions have been disregarded for the sake of giving the method an absolutely fair trial. Many of the patients had heart murmurs; not a few were the subjects of degenerative kidney disease; and one, at least, suffered from the gravest of all pulmonary lesions, namely, gangrene of the lung, from which he died a week later. One patient had actual suppression of urine, which was unknown to him at the time of operation. The patient upon whom amputation at the hip-joint was done was an exceedingly weak and feeble old woman of sixty-eight. The patient upon whom Albert-Frank's gastrostomy was done was a half-starved subject with occlusive carcinoma of the esophagus and esophagotracheal fistula. The case of tuberculous peritonitis was in a patient far advanced in the disease and greatly emaciated, and in whom an incision from the ensiform cartilage to the symphysis pubis was made. It was necessary to extend the incision upward in order to reach a gastric ulcer which he had suspected to exist, and which he saw perforate through a small and distinctly circumscribed gangrenous patch upon the anterior stomach wall just as the edges of the incision in the abdominal wall were retracted. The case of tuberculous ulceration of the thigh was that of an exceedingly feeble old man of sixty-three, upon whom double castration for tuberculous testicle had been previously performed. The amputation of the leg was done on an old and feeble woman of sixty-nine, with arterial sclerosis, gangrene of the foot and ankle, and the dry tongue and low mental condition of septicemia. Another case was one of advanced degenerative disease of the spinal cord itself. The ectopic gestation was in a woman who had lost a large amount of blood. The nephrectomy patient was thoroughly septic and died in ten days afterward of general exhaustion and pyemia, the autopsy showing old foci of infection in the remaining kidney. The inguinal colostomy was done on an extremely feeble old man with advanced cancer of the rectum, with albumin and hyaline and granular casts in the urine. Time, however, does not allow him to refer to these at greater length. Suffice it to say, however, that these patients, in whom a general anesthetic was unsuitable in the judgment of any surgeon, showed, as a rule, less pronouncedly alarming effects from the spinal cocainizat on than many of the younger and far more vigorous subjects in his list.

Dr. Fowler has endeavored to employ anti-

pyrin alone, following the suggestions of Nicoletti, of Naples, who reported at the Paris Congress some successful experiments with this drug upon dogs. In the first case he was not sure of its analgesic effects, owing to the fact that the patient was a stoical Italian woman who spoke no English. In a second case this drug failed entirely. A combination of antipyrin and cocaine seemed to give somewhat better results proportionate to the amount of cocaine employed, so far as the analgesia was concerned. Dr. Fowler states that he is not prepared to say at this time just what advantages may be derived from endeavoring to lessen the amount of cocaine by using a mixture of this with other agents. Up to this time the after-effects of these mixtures, as well as those following the injection of fluids other than cocaine, have not been less than in cases in which cocaine alone was used.

In closing, he states that, in spite of his favorable experiences with spinal cocainization, he holds to the proposition that the ideal anesthetic agent is one which, with absolute safety, will render the patient entirely oblivious, not only to the pain of the operative procedure, but to each and all of its disagreeable features as well, including knowledge of the surroundings, the fear and prolonged dread of a fatal result during the operation itself, this being possibly enhanced in the case of a patient fully conscious by the thought that his life hangs upon the point of the surgeon's knife, and that the slightest movement involves the greatest danger. These, together with the disagreeable incident of vomiting, to say nothing of the disgusting occurrence of involuntary urination and defecation while upon the operating table, should be eliminated from the conscious environment of the patient, whenever possible with absolute safety. These propositions are self evident in all cases, but are particularly true in surgery. In obstetric practice, on the contrary, even in the case of a primipara, the patient is more or less prepared, by long looking forward to the important and crowning event of her maternal instinct, for not only painful but disagreeable, and what under any circumstances cannot but be disgusting, features of that event. Not so in surgical practice, in which the announcement of the necessity for an operation is a shock in itself, from which the patient scarcely has time to recover before being called upon to undergo the ordeal itself. While, in certain exceptional instances, the patient will dread the enforced loss of consciousness, the greatest fear on the part of the latter arises from the supposed dangers incident to the anesthetic agent. Take away this fear, and the positive promise of an absolutely harmless nepenthe will far outweigh the suggestion of an experimental analgesia.

Dr. Fowler states that he is impelled to make these remarks by a consideration of the matter from the standpoint of the patient's own feelings, a point of view which cannot be ignored. That the ideal anesthetic has not yet been discovered is unhappily only too true; but he is persuaded that this much-to be-hoped-for event will come along the line of thought suggested by general rather than local anesthesia or simple analgesia, and through an elimination of all the disagreeable features of the surroundings, rather than a more or less transient suspension of the pain-transmitting function of the nerves involved in the operation.

At the present time we may only say that Corning's method has an undoubted sphere of usefulness in surgery. The indications for and limitations of, as well as whatever danger may attend, its employment can only be determined by further trial and careful study of a large number of cases.

THE SURGICAL TREATMENT OF PUERPERAL SEPSIS.

Obstetrics for December, 1900, states editorially that the marked differences of view held by obstetricians and gynecologists as to the question of operative treatment of puerperal infection are in no way due to confusion over what may be the proper surgical procedure in a known pathological process, but to a want of diagnosis. There might be no opposition to the question of hysterectomy for the uterine body and adnexa, which are filled with many pockets of pus that cannot properly drain into the cavity of the organ; nor for free puncture and drainage of purulent infiltrations of the broad ligaments and neighboring parts; nor to flushing and drainage in certain conditions of peritonitis; but the worry of the profession at large is to know when these conditions exist. In truth, it is the worry of the operators, who would be leaders as well. The most remarkable feature of present writings on this question is not what is said, but what is not said, in the arguments brought forward. There is a constant suggestion of the old nursery say-

ings, such as "First catch your hare," and "You can easily catch a robin if you only put a little salt on its tail." Operate, yes; but when? In certain forms of infection speed is objectionable—*i.e.*, in the infiltrating cellular variety; in another form delay is fatal to success, in the *foudroyante* type, in which the germs fly like winged messengers along the tracts of the lymphatics or veins.

It is a very small percentage of cases of puerperal infection that ever requires operation; therefore it is a very small percentage of cases on which we operate in which the diagnosis is actually obtained before the exploratory incision is made. We come, then, to the question of whether an exploratory incision in cases suspected of being in need of operative measures will be so free from danger as not to produce a greater mortality than follows in cases treated by non-operative methods. This question is not being treated as fairly and impartially as it should be. There are a number of physicians, more gynecologists than obstetricians, who have had relatively little experience, and have not therefore a proper sense of the conservative tendency of these cases to recovery, who discuss the needs of operation in isolated sample cases, and to the satisfaction of all in this respect, but who do not weigh the dangers from operation in their true balance against all cases. Nor are they at all clear in determining how to make the diagnosis. To undertake to forestall the general distribution of streptococcic infection is most desirable, but are we to operate every time we think a case is moving to such a form? We have had many cases that so threatened which did not become systemic, and if we had operated we might easily have increased the mortality instead of preventing it. To the obstetrician who treats his cases carefully, as in a large hospital service, and who has every opportunity to watch them in all their varying moods, two views are forced upon him—that very few cases prove the need of operation, and that the argument of the bedside is strong for conservatism.

The most crying need of the hour is differential diagnosis. Examinations of the vagina, cervix, and secretions of the uterus and vagina for exact bacteriological knowledge of the infection, when made promptly with the beginning of symptoms, will enable us to check many cases by direct local applications. An exact knowledge of the character of the labor through which the patient passed will help in learning of actual conditions. Thus some cases suggest the presence of thrombi in the sinuses because the patient had an exhaustive labor with hemorrhage from the placental side, and final cessation of the bleeding through general circulatory weakness; or she had prolonged stasis of the head at a given point which suggests possible necrosis of a small part of the uterus with underlying germ growth in the line of separation; or she had become very edematous before delivery, with dryness of the vagina and vulva, a condition bringing the tissues into a most favorable condition for infection and its rapid extension; or she has had secondary postpartum bleedings with probable formation of blood-clots in the cavity which may not be expelled until they have softened by decomposition. All such conditions indicate the lines of surgical treatment, and are very helpful to diagnosis when known. There is a great field here for further investigation as to the individual behavior of the several germs which produce infection. Our present knowledge is very limited, considering the importance of the field. We need reports of a thousand cases of gonorrheal infection alone, of the streptococcic infection, and of each of the others, and also these in combinations, with extended study of their characteristics. Such cases in large numbers will, in all probability, bring out little peculiarities of habit and idiosyncrasy of the several tribes of microbes. We will have such information ere long, for many obstetricians are accumulating such data. We have tried to conquer puerperal infection by a master-stroke; we have tried to treat it specifically by a number of remedies, and they have all failed us. We may find a specific, but our present duty and opportunity is to accumulate all possible data of exact reports of many cases of infection.

LOCAL USE OF GUAIACOL IN THE TREATMENT OF FREQUENT PAINFUL URINATION.

J. HAWES, of Greeley, Colorado, states in the *Journal of the American Medical Association* of December 29, 1900, that he wishes to present guaiacol as a remedy for the treatment of painful urination, which, so far as is known, has not been mentioned in the therapeutics of this annoying disorder.

Frequent urination is a symptom of various affections, but guaiacol is applicable only to those cases in which the cause of the symptom is located in the extreme inner portion of the urethra, usually in a space 34

to 1¼ inches external to the urethrovesical orifice. Many diseases of the genito-urinary system cause urgent micturition, yet it is probable that all other causes combined furnish fewer cases of frequent painful urination than the one condition under consideration.

Hawes believes that disease of the deep urethra is usually mistaken by the majority of general practitioners for cystitis or "irritable bladder," and is quite sure that nearly all the cases which years ago he himself called cystitis and irritable bladder were not such. He suspects that most of the cases treated with buchu, rhus aromatica, uva ursi, belladonna, etc., and called cystitis, should be called disease of the deep urethra and treated locally.

The morbid condition is usually confined to the mucous membrane and submucous tissues. In almost all cases there is a heightened color of the mucous membrane, varying between a rose pink and slight purple, some cases presenting a granular surface. The diseased part will often bleed on touch. There may be, and usually is, some uneasiness about the base of the bladder, and when the desire to urinate is decidedly present, the discomfort is marked, nagging, and exceedingly uncomfortable.

It is only necessary to place the positive physical signs and symptoms of cystitis, diseases of the prostate and kidneys, gonorrhea, contracted and adherent prepuce, stricture of the urethra, etc., in contrast with the physical signs of inflammation of the deep urethra, to put the physician on his guard against confusing these diseases. The writer has called attention thus briefly to some of the symptoms and signs of deep urethritis to emphasize the fact that it is often mistaken for other diseases.

The diagnosis having been settled, an ordinary urethral speculum of a caliber as large as can be borne with comfort should be passed through the deep urethra. With absorbent cotton on a cotton-carrier the mucus at the bottom of the speculum should be taken up, and if any blood has filled the lumen it should be mopped away until the mucous membrane is dry. Another carrier, having a small ovoid of cotton on its point, nearly saturated with guaiacol, may be used to make applications to the congested membrane.

Guaiacol in a fluid condition should not be permitted to cover the mucous membrane; barely enough to make a surface application is all that is desirable; thus applied it is an anesthetic and mild stimulant. It gives rise to much less pain than the usual local applications. No strangury results, as is usually the case when silver nitrate is used. The patient will often retain the urine for hours after the application. Its use is often followed by a lessening of the perineal and suprapubic discomfort after a few hours, and a few applications, from five to ten days apart, have been more satisfactory to patient and physician than any remedy previously used. It has cured twenty per cent of the writer's patients. About seventy per cent of the cases are improved markedly. Some cases that would seem to fall fairly within our field are not improved. If applied every day or two it will produce local tumefaction, causing a diminished size of the urinary stream; this tumefaction passes away in a few days.

ALKALOIDS AND THEIR ACTIONS.

W. MURRELL states in the *Medical Press and Circular* of December 19, 1900, about the advantages of alkaloids. He tells us that there is one important point to remember about alkaloids, which is that many so-called alkaloids are not pure alkaloids, but simply a mixture of alkaloids. Daturine is commonly said to be the alkaloid or active principle of *Datura Stramonium*, but as a matter of fact there is no such substance as daturine. What is sold as daturine is simply a mixture of atropine and hyoscyamine. Recent researches have shown that atropine and hyoscyamine are one and the same body, prepared from different plants and by different processes, from which it follows that daturine is simply atropine under another name. There are many examples of this confused nomenclature; for example, duboisine is simply hyoscyamine, in other words atropine. Pituri, obtained from *Duboisia Hopwoodii*, is simply nicotine, and the list might be extended almost indefinitely.

Dr. Murrell states that he is often asked to indicate what in actual practice are the most valuable alkaloids, and if he had to draw up a list of a dozen, the following would be his selection:

1. Morphine. This is the chief and most important alkaloid of opium and represents its physiological activity. It matters little which of the salts of morphine is employed—the hydrochlorate, the acetate, the sulphate, or the tartrate, all being active. They allay

pain and spasm and induce sleep. Small doses of morphine frequently repeated are of the greatest value in allaying the cough of early phthisis. Codeine is simply a weak morphine, and if we have the primary and more active alkaloid we can readily dispense with the services of the weaker brother.

2. Quinine. This is commonly given in the form of sulphate dissolved in water, to which a little dilute sulphuric acid has been added, as many minims of the dilute acid as there are grains of the sulphate of the mixture. This forms a perfect solution. In two-grain doses three times a day it is a useful tonic, while in larger doses, ten or fifteen grains or more, it is by far the best antiperiodic and is of great value in malaria, supra-orbital neuralgia of malarial origin, and a number of similar diseases.

3. Atropine. This is the chief alkaloid of belladonna and some allied species, and will check the night sweating of phthisis and other forms of hypersecretion. It may be given either by mouth or hypodermically, and in the latter case a single dose of one-sixtieth grain, or even less, will usually effect a cure. Its action in dilating the pupil, and its value in iritis, syphilitic or otherwise, are well known. Its derivative, homatropine, is undoubtedly useful, but in the hands of a skilful physician the major alkaloid will effect all that is necessary.

4. Strychnine. This, the chief alkaloid of nux vomica, is always found in conjunction with brucine. It is most useful as a nerve tonic, and is usually given in acid mixtures. Employed hypodermically in doses of one-twelfth of a grain once or twice a week, it improves the nutrition of the muscles and restores warmth to the limbs in infantile paralysis, and in many cases of chronic hemiplegia. Brucine is comparatively rarely employed, and would only be indicated in the absence of strychnine.

5. Pilocarpine. This alkaloid has many advantages over the crude drug jaborandi. Administered hypodermically in doses of from one-third to one-half grain, in the form of the nitrate or the hydrochlorate, it induces profuse sweating or salivation. The patient should be in bed at the time in a warm room, and between blankets. In the initial stages of a cold, and in many forms of Bright's disease, it is invaluable.

6. Aconitine. The active principle of aconite is of use in many forms of obstinate neuralgia, such as tic douloureux. It is difficult to give definite directions with respect to dosage as different "makes" of this alkaloid differ enormously in activity, but with the very best aconitine, $\frac{1}{110}$ grain in pill, three times a day, a definite physiological action should be induced. As a local application the ointment of aconitine is most useful, but a certain amount of care must be shown in its employment. A piece not larger than a bean should be rubbed in, and care should be taken that it does not come in contact with an abraded surface or with the mucous membrane of the eyes or mouth.

7. Apomorphine. This is a derivative of morphine, and is obtained by heating morphine hydrochloride or codeine hydrochloride in sealed tubes with hydrochloric acid. The hydrochloride is the salt in use. Given hypodermically, it is the most powerful emetic known. It will completely evacuate the contents of the stomach in less than one minute without producing cardiac depression. The ordinary dose for the purpose is one-tenth of a grain. Given by mouth it produces neither nausea nor emesis, but acts as a powerful expectorant. The dose for this purpose is from one-tenth to one-fourth grain. If the 1-to-100 solution is employed, it may be made into a linctus or mixture with syrup of tar. Apomorphine speedily gets darker on being exposed to light, but this change in color in no way impairs its efficacy. It may be prevented by the addition of a drop or two of dilute hydrochloric acid.

8. Physostigmine or eserine contracts the pupils when applied locally, and is invaluable in ophthalmic practice. Its chief use is in the treatment of glaucoma. For internal administration we have the hydrobromate, salicylate, and sulphate, which in doses of one-sixtieth to one-twentieth grain have been used with benefit in tetanus, chorea, and in chronic cases of paraplegia.

9. Cocaine. The use of cocaine as a local anesthetic is so well known that it is hardly necessary to say anything about it. It is difficult to know what one should do without so useful a remedy. One of its most valuable properties is that of dilating the pupil. Of course, it has its disadvantages, and many substitutes for it have been introduced—eucaine B, for example—but it still holds its own.

10. Caffeine is only a weak alkaloid, but it forms salts which are more or less stable. The citrated caffeine is a good diuretic, but its chief use is in the treatment of neuralgia and the various forms of migraine and sick-headache. A combination much affected by

the laity is four grains of phenacetine with one grain of citrate of caffeine. Phenacetine even in these doses is not a particularly safe remedy, and is apt to give rise to cyanosis, dyspnea, and other disagreeable symptoms.

11. Gelsemine. By gelsemine is meant the pure alkaloid, a yellowish-white microcrystalline powder. It is not the same as gelsemin, the powdered alcoholic extract, which is of a pale brown color, and is much less active. The alkaloid is usually given in doses of one-sixtieth grain, often in the form of a pill, with sulphate of quinine or butyl-chloral-hydrate. It is an admirable remedy for neuralgia, especially the form affecting the lower branches of the fifth nerve.

12. Colchicine. The alkaloid of *Colchicum autumnale* is far less appreciated than it ought to be. It is a very active remedy, and a dose of one-sixtieth grain three times a day is ample. An excellent pill is composed of one grain of calomel and one-sixtieth of colchicine. As a rule it does not purge if given three times a day, but very speedily affords relief not only in gout but in that far more common affection which we call goutiness.

The intelligent physician, armed with these twelve alkaloids, and knowing how to use them, would be in a position to treat almost any medical case that might fall to his lot.

THE TREATMENT OF ACUTE COLDS.

M. B. STEWART states in the *Medical Bulletin* for January, 1901, that many acute colds have their onset by a slight localized burning, stinging, or itching sensation in the throat. If it is possible to treat at this stage, paint the spot with pure glyceritum acidi tannici, or a solution (gr. x to ℥ j) of argenti nitras. Follow this by two grains of bisulphate of quinine, two grains of acetanilid, and a cup of hot tea, milk, or water, and the case is usually aborted. Many cases are aborted by the painting alone. If this burning sensation is allowed to continue for six or twelve hours, more decided measures are necessary, as the throat becomes sore, or there is a marked coryza developed, or general pains and constitutional symptoms. Any therapeutic agent that will tend to equalize the circulation or render the emunctories active will materially assist; hence the virtue of a dose of castor oil, calomel, blue mass, or other purgatives. It is well to have free catharsis at the beginning of active treatment.

For the nervous type with general aching, headache, fever, chilly sensations, and flashes of heat, some sore throat, and cough, it is Dr. Stewart's custom to give a tablet containing:

℞ Quininæ bisulphatis, gr. j;
Acetanilid, gr. j;
Cocainæ hydrochloratis, gr. 1-16.

Signa: One tablet or capsule every hour for four consecutive hours, then every two hours. Give half a cup of very hot water or milk after each dose.

Put your patient in bed for best results. Most cases of this type respond promptly to this method; but, if the congestive headache still continues, give a hot mustard foot-bath and put a mustard plaster to the back of the neck. If the cough is dry and irritating, give codeine gr. $\frac{1}{16}$, or heroin gr. $\frac{1}{30}$, with the tablet, but not combined with it, for neither narcotic is needed when the cough is controlled.

For the catarrhal type with running nose, suffused eyes, some cough, and sore throat, give

℞ Quininæ bisulphatis, gr. j;
Camphoræ, gr. ¼;
Extract. belladonnæ, gr. ½.

Misce. Pone in tabellæ vel capsul. No. j. Signa: One every hour for four or five hours, then one every two hours.

Follow the same general rules as in the nervous type. Good results can also be obtained from the T. G. Davis fever tablet (tr. aconiti, ♏ $\frac{1}{8}$; tr. belladonnæ fol., ♏ $\frac{1}{10}$; tr. bryoniæ, ♏ $\frac{1}{10}$) given every fifteen to thirty minutes and allowed to dissolve in the mouth. As soon as the physiological effects of the belladonna are felt lengthen the interval to one or two hours. In children melt six or eight of these tablets in thirty teaspoonfuls of water, and give one teaspoonful every twenty to thirty minutes until results are obtained. Inhalations of menthol, camphor, or turpentine are beneficial. Better still, spray the nose and throat frequently with:

℞ Menthol, gr. x;
Camphoræ, gr. xv;
Olei eucalypti, gtt. x;
Albolene, f ℥ ij.
M.

Cosmoline used freely in the nose is also useful to relieve soreness and excessive secretion. When there is sore throat the following gargle is most serviceable:

℞ Glyceriti acidi tannici, f ℥ j;
Acidi carbolici, gtt. xv;
Glycerini, f ℥ j;
Hydrogen dioxide, q. s. f ℥ iv.

M. Signa: Two to four teaspoonfuls to ¼ glass of water, and gargle every fifteen minutes to one-half hour.

If to this method is added an ice-bag applied to the throat in selected severe cases results are prompt.

One frequently meets with a mixed nervous and catarrhal form of cold. Alternate each hour between the acetanilid and camphor pill before mentioned until the nervous symptoms subside, then discontinue the former and give the camphor pill every two hours. Very few colds in their first stage will fail to give prompt response to this treatment. Dr. Stewart's success with large doses of Dover's powder has been poor, but some cases will undoubtedly respond to it. There is a class of individuals in whom abortive methods will not act even at the very onset, but many of these will be found to neglect some detail or expose themselves to further infection.

Most cases of acute colds will come to us when they have passed the stages outlined, or maybe we have treated with little result and the cold has progressed to a bronchial type with a hacking, dry, burning, or painful cough and pain in the chest. Immediately apply mustard over the painful or affected area. Best results are obtained from a home-made mustard plaster of one part brown mustard and three parts flour mixed with tepid water or egg albumen. This modified plaster can be kept on for hours with no danger of blistering, except in very sensitive skins. In the latter case anoint the skin with cosmoline or lard before applying the plaster. In young children it is better to use free inunctions of camphorated oil, turpentine, and lard, or coal oil, applied hot from two to three times daily. In fact any good counter-irritant to the chest is good. Internally give:

℞ Vini antimonii, f ʒ jss;
Ammonii bromidi, ʒ ijss;
Liq. ammonii acetatis, f ʒ ijss;
Syr. limonis, q. s. ad f ʒ iij.

M. Signa: One teaspoonful in water every two hours.

Use this combination each alternate hour with the camphor pill or acetanilid pill as indicated. In simple colds use the mixture alone. There is no one working formula that gives as much satisfaction as this. The antimony will reduce heart action without depression, relieve congestion, and start bronchial secretion. The bromide will relieve harassing cough and any nervous symptom, will assist in controlling the heart, and acts locally as a sedative to the throat. Liquor ammonii acetatis will render the skin and kidneys active, and soon bring on free bronchial secretion. Syrup of lemon is the best vehicle, and next to it is mistura glycyrrhizæ. This formula should be varied in strength according to the demands of the case. It is sometimes well to substitute codeine, gr. $\frac{1}{16}$, or heroin, gr. $\frac{1}{30}$, for the bromide to control cough. Opiates, as a general rule, retard recovery, but should never be neglected if the cough is not easily controlled. Continue this method until all congestion disappears, when it is wise to follow with a good preparation of hypophosphites or cordial or emulsion of cod-liver oil. Should the case be a depressed old person this same combination can be given with perfect safety, but it is well to give five to ten drops of aromatic spirit of ammonia, well diluted with water or milk, every three hours, at a separate dose. Ammonium chloride, in the writer's experience, is very much overestimated and disappointing. In most cases the cough is eventually "tightened" and aggravated. Its one main use seems to be to disorder the stomach and depress the appetite. Other ammonia preparations are much better when indicated.

THE CONSENSUS OF JUDGMENT WITH REFERENCE TO THE TREATMENT OF TUBERCULOSIS.

Writing in the *Medical News* of December 29, 1900, DENISON reminds us that the preference for high altitudes to which those who have had experience in Colorado are wedded rests upon their personal knowledge of remarkable results. They believe these results could not or would not occur under other and low altitude conditions, except as a rarity. Yet if we were to average the whole profession's opinion on this point we would be outvoted by those who imperfectly understand and who poorly appreciate the chief factor of their climate, viz., the physical effect of the rarified air upon the lungs and heart—the pulmonary air and blood circulation. That the inactive, sedative, and confined life in the lowlands has its counterpart, proportioned to the rarefaction of the air, in the active, stimulating, and open life of our interior altitudes is a plain proposition which seems to be poorly understood by the majority. They have "heard tell," but they do not see it clearly that the periphery of the body is somewhat congested in the high altitude due to the crowding of the greater amount of air breathed into the pulmonary spaces, aided by the less pressure of the atmosphere on the surface of the body.

That there is always a reciprocal relation between the blood in the thorax and the air in the lungs does not seem easy to understand according to the reasoning of the advocates of the rest cure, which seems to be the favorite method with the majority of physicians. We are, or seem to be, under a spell of uncertainty, if not of fear—a practical acknowledgment of our inability to properly cope with this lethargic disease. Since the evidence of cures, by whatever method or climatic change produced, is so generally believed to be confined to the incipiency of "first stages" of the disease, Denison suggests a test suited to this period. It is recommended for the consideration of those gentlemen who come in contact with large numbers of consumptives in their capacities as organizers or governors of proposed sanatoria for large cities in the East. The trial Dr. Denison suggests would not only be of incalculable value to these men in the management of their institutions, but the preeminent superiority of an outdoor life in their high altitudes would thus be settled.

Let these gentlemen choose, or have selected by careful physical examinations, one-tenth of any 500 or 1000 consumptives who come under their notice. This choice is to be based upon the fitness of these supposedly tuberculous persons for the active outdoor life proposed, and limited to those who are on the favorable side of the breaking-down period in pulmonary tuberculosis. These fifty or one hundred invalids, preferably young men, are to be under the care and control of a selected physician. If he also needs this kind of life it would not greatly matter, provided he had the initiative and enthusiasm to make his mission a success. Then a hospital tent with one or more spring wagons, for transporting invalided members, should also be provided; also a commissary and cook and sufficient aid to have the party live well; also a large mess tent which should give shelter in case of storms, and freight teams for carrying same and each one's individual luggage. Other tents might also be provided, but the main idea would be to have these young men sleep out in the open nearly all the year round. In order to do this safely, he recommends each man to have an "outfit" such as the cowboys have on the large cattle ranches in the Panhandle of Texas.

Such a movable camp could outfit from one of the cities at the eastern base of the Rocky Mountains in Colorado, and start out, say, in June, expecting by easy stages—ten to twenty-five miles a day when on the move—and by prolonged campings at desirable places, to reach some southern point (as, for instance, the south slope of the mountains north of Tucson, Arizona) by the first of December. Here a winter camp for three or four months might be provided with added provisions, perhaps temporary cabins, to meet the season's requirements. After this a return north by a new route could be undertaken, including unfrequented and interesting sections of western Colorado, with the object of disbanding, say in Denver or thereabouts, the following October or November.

Now, under a right personal and financial organization, and a careful and conscientious choice of invalids to make up such a party of fifty to one hundred, Denison believes the results would be better than could be produced by any other at present known system or method of treatment. From the workings of such a plan it would not be difficult to conceive how changes could be made, so that it would be possible to include the care of the more seriously ill, even to the extent of having nurses along. Again, permanent camps or ranches might be established in connection with gardening, cattle- and sheep-raising. For instance, three camps five to fifteen miles from each other might be established at different elevations to suit the winter, spring and fall, and midsummer seasons; the tents with board floor being moved from one to the other. Thus, an elevation of two to four thousand feet higher in summer than in winter could be secured. Such places have the additional advantage of fine exposure and good water, and could be found in New Mexico and Arizona, where considerable tracts of land could probably be bought very reasonably for this purpose—but these suggestions are diversions from the main object of this paper.

The other difficulty we have to contend with in eradicating tuberculosis is the fact of the consensus of judgment among medical men hovering so closely around the germ cause that the predisposing conditions (without which the disease could not exist) go undetected, and the greatest possible success cannot be obtained. In Dr. Denison's paper upon "The Degenerative Results of Deficient Ventilation," read at the last meeting of the American Climatological Association, he has so fully worked out the proof that we as a people are living upon a deficient ventilation curve, and that this defect in our

civilization is at the bottom of our prevalent tissue degeneration and tuberculous tendency, that he may be pardoned for referring thereto for the detailed argument. The conclusion therein reached was that the healthful respirability of the air depends upon its not having been previously breathed or shut off from the revivifying influence of the sun; in other words, that the electrifying, purifying, and motion-producing influence of the sun cannot be shut out from the air we breathe without a resultant vitiating effect upon the blood and tissues, in the lungs especially. Thus, the air is rendered unfit for respiration, and here is the main source of the dyscrasia or degeneration which makes the destructive activity of the germ possible.

THE NITRITE TREATMENT IN SYPHILIS.

BROWNING writes in the *Medical News* of December 29, 1900, on this subject, and expresses the belief that in gumma of the brain or cord the nitrites help materially to get the desired rapid action of mercury and iodides.

Specific troubles outside the central nervous system, especially when accompanied by pain, may be thus favorably influenced. For instance, in the recent case of a young man with known hereditary taint, the symptoms of a sharp first attack of appendicitis yielded readily to this means after complete failure of the ordinary remedies.

The nitrites are indicated in all syphilitic diseases of the arteries, as a rule in all specific affections attended by pain, in all syphilitic brain troubles, and especially in the later and hereditary forms of syphilitic disorder (cerebral, spinal, peripheral). This groups clinical indications rather than differentiates them, but for present and practical purposes it may suffice. With these indications goes the mandate to immediately employ such other and more directly specific agents as the case demands. The title of this paper is intentionally made use *in* syphilis, not *for* syphilis. It is understood that the glycerin and erythrol preparations are nitrates; but it is what is known physiologically as the nitrite action that is developed, and hence that term is used in this article.

In the use of the nitrites certain by-effects, in general unpleasant, are met with more or less frequently. The frontal pressure, fulness of the head, and even headache, are presumably inherent if we succeed in getting the desired physiological action, no matter which preparation is employed, and hence we may not expect in any way to materially avoid them. Whether the drug acts quickly or slowly so long as it acts forcibly these secondary effects must be expected. A certain tolerance usually develops, possibly the expression of systemic accommodation. In the case of the rapidly acting nitroglycerin, the head manifestations may be more sudden and transient, but the difference is only one of degree. Not so, however, in the case of the peculiar discomforts that soon become intolerable to many patients. These are evidently due to the decomposition of the nitrite in the stomach.

The nitrite of amyl need not be considered, as its action is too evanescent. Of the other preparations nitroglycerin alone possesses in Dr. Browning's experience practical freedom from this objection (due presumably to the fact that it goes unaltered into the circulation). For that reason this preparation is, for any prolonged periods, the one we are often compelled to employ. Nitrite of sodium may be tried at the start, and in rare cases continued some time. Usually, however, the complaints are soon so urgent that a change has to be made, Some of his colleagues using these preparations find less complaint against them than he does. Since the more general accessibility of the tetranitrate of erythrol he has made considerable use of it. Possibly the gastric complaints are somewhat less or more delayed than in the case of the sodium salt, but there is no great difference in the two on this point. Lethargic and stuporous individuals can sometimes continue it awhile. The employment of this preparation is based on the results obtained by Bradbury (*Lancet*, 1895, II, pp. 1205–1213), who showed that its peculiar nitrite properties are slower and more lasting in their effect, beginning in half an hour and continuing several hours. He recommends doses of a grain or more, given either in solid form or dissolved in alcohol. In his work doses of half a grain are quite sufficient at the start, and even that amount may soon be complained of. Dr. Browning finds that clinically, as was shown by Bradbury experimentally, it does not cumulatively lose its effect, as is the case with nitroglycerin. Its slower action is its most desirable quality.

The desideratum at present is some vasodilator at least as slow and prolonged in its action as the erythrol salt, and at the same time as free from gastric disturbance as is

the glycerin preparation. Doubtless some of our chemists or workers will find an article free from drawbacks, or perhaps some combination in administration that will prevent this without invalidating effectivity. Meanwhile, though we can begin with one of the sugar combinations (mannitol nitrate having also been recommended) or the nitrite of sodium, we shall usually have to fall back on nitroglycerin for prolonged use, despite its lack of needed staying qualities. Occasionally we need at the start a very prompt agent, and then of course nitroglycerin is just in place.

The method of administration is also of importance. For the writer's plan the hypodermic use is quite unsuited. That only makes the action of the nitrite the more temporary, and leaves the course of events unaffected until the next dose. It is moreover often painful, but that is not the essential objection. As nearly a continuous action as possible is what is in order, and for that purpose administration by the mouth answers best. One to two grains of sodium salt is usually sufficient, at least for the earlier doses.

All of these agents are highly explosive if improperly handled. This should be borne in mind in making combinations, a practice not to be recommended when dealing with the nitrites. The sodium salt should be given in solution, while the sugar preparation is available in tablet form.

TREATMENT OF THE GASTROINTESTINAL SYMPTOMS IN TYPHOID FEVER.

ANDERS states in the *Journal of the American Medical Association* of January 26, 1901, that the following methods are best for the conditions named. For the constipation sometimes present throughout the entire course of the disease, Dr. Anders has found that an enema of soap-suds, given every second day, is followed by the speediest and best results; in late protracted cases accompanied with an irregular intermittent fever, he has seen good results follow the administration of divided doses of saline laxatives. Again, it sometimes happens that a diarrheal condition occurs during the early period of convalescence, due to some irregularity of diet or overabundant feeding, or to a bacillary—otherwise harmless—development, and under these circumstances a mild laxative is sometimes followed by prompt amelioration of the symptoms. In this condition he protests against the routine use of the so-called Woodbridge treatment. He has never seen the gratifying results claimed by its author and his disciples. Moreover, there is no special medicinal treatment for typhoid fever, but there is for the individual case.

Of the group of intestinal antiseptics—salol, benzonaphthol, thymol, carbolic acid, etc.—the author commonly employs salol, the dose being three grains every three hours, or larger quantities, even if the symptoms are above the average severity. It is a compound of salicylic and carbolic acids, insoluble in the normal juices of the stomach, but the pancreatic secretion decomposes it into its constituent elements. Its action is that of an antiseptic; meteorism is diminished, and the stools become less offensive, as has often been observed. The other members of this group of antiseptic agents may be credited with the same action, but the author's personal experience with their use has been quite limited.

For the marked distention of the bowel, especially noted when the colon is the seat of the principal lesions and diarrhea is a prominent feature, turpentine is probably our best remedy; it is an efficient antiseptic and a stimulant to the circulation and glandular system. When the healing process in Peyer's patches is slow and sluggish, turpentine, by virtue of its stimulating action, hastens the repair of typhoid ulcers. For the meteorism white turpentine or the oil may be administered internally; if the stomach becomes intolerant, then enemas of the oil combined with milk of asafetida are very efficacious. As turpentine is eliminated from the system through the lungs and kidneys, and on account of the overworked condition of the last named organ, the drug should be used with great caution, or discontinued on evidence of albumin in the urine. The author quotes Dr. Pfromm as reporting that in a recent case he saw with a brother practitioner, the patient, being in the last half of the second week of typhoid fever, suddenly showed uremic manifestations while taking turpentine; the urine was scanty and contained both albumin and casts; some twitching of muscles was noticed. On discontinuing the turpentine, the urine increased in amount, albumin and casts disappeared in three or four days, and the patient made a good recovery.

The colon or lower bowel is sometimes the seat of extensive ulceration; this is productive of marked tympanites, and at times an ex-

hausting diarrhea supervenes, or involuntary discharges may occur. In these instances intestinal irrigation, if judiciously employed, tends to sweep from the bowel decomposable material and irritating microorganisms. Dr. Anders sometimes combines with the water an antiseptic, as salicylic acid .5 to 1 per cent, or bichloride of mercury 1-to-6000, used thrice daily, or every four hours, according to the urgency of the symptoms. If a decided catarrhal condition exists, silver nitrate .25 to 1 per cent may be advantageously employed.

ON THE VASOMOTOR INFLUENCE OF QUININE.

The *Journal des Praticiens* of December 1, 1900, contains an article by HUCHARD in which he states that Liegeois first called attention to the fact that quinine, when given in large doses, is sometimes of value for the purpose of controlling hemorrhage, and he also recalls the fact that De Mussy as long ago as 1871 reported the treatment of uterine hemorrhage by the sulphate of quinine. Still later, other French clinicians reported the results which they had obtained from large doses in the treatment of various congestions and hemorrhages, in exophthalmic goitre, and in aortic insufficiency with tachycardia. The mixture which has been largely employed for the control of hemoptysis is as follows:

Sulphate of quinine, 1½ drachms;
Aqueous extract of ergot, 20 grains;
Powdered digitalis, 2 grains;
Extract of hyoscyamus, 2 grains.

To be made into forty pills, five or six of which are to be given each day for two or three days.

Other investigators have reported their success in the employment of somewhat similar mixtures in the treatment of metrorrhagia.

In regard to the influence of the drug in exophthalmic goitre, Huchard asserts that it is a valuable vasoconstrictive when given in a pill made up as follows:

Sulphate of quinine, 1 drachm;
Extract of opium, 1½ grains.

Make into thirty pills, and give four or five pills a day.

It is also believed that the addition of antipyrin to quinine distinctly increases its hemostatic power, and it may be prescribed as follows:

Sulphate of quinine, 1 drachm;
Antipyrin, 1 drachm.

Make into eight cachets, and give three cachets each day.

It is, however, in cases of aortic insufficiency with excessive pulsation and palpitation of the heart which can be readily seen in the cervical arteries that quinine is said to be particularly valuable. Under these circumstances Huchard has employed the hydrobromate of quinine in preference to the sulphate, with the thought that it would be more sedative given in the dose of fifteen grains a day. He claims that this method of treatment has given very extraordinary relief to a certain number of cases. Emphasis is laid upon the necessity of obtaining rest for such patients at the same time that the quinine is given.

[The criticism that we offer this paper is that its views are directly in antagonism to those which have been commonly held by American physicians in regard to the influence of this drug. Hirst and others have been inclined to believe that it distinctly increases the tendency to uterine hemorrhage, and others have thought that it increased the tendency to hemorrhage in the kidney. So far as we are aware, nothing that is known concerning the physiological action of quinine would indicate that it has any direct constricting effect upon the blood-vessels, although, of course, by supporting the system and acting as a tonic, it may improve the condition of the patient.—ED]

TREATMENT OF LATERAL CURVATURE OF THE SPINE.

CHISHOLM WILLIAMS (*Pediatrics*, vol. xi, No. 2, 1901) states that putting aside those cases affected with short-leg or flatfoot, or some easily remedied cause, where the treatment by mechanical or other means would be sufficiently obvious, he can safely state that no five of 500 cases of lateral curvature of the spine were treated alike from "start to finish." He had no case, of whatever degree of so-called osseous deformity, under the age of twenty-five years, in which he was not able to effect some amelioration. By this is meant not only a stronger (if weak) back but a more straight position of the vertebral bodies. It is reasonable to suppose that the intervertebral cartilages must become very "wedge-shaped" before the bodies are much affected, and if the pressure of the bodies on them can be relieved by any means the disks will become thicker, the shortened ligaments longer, and the long lax ligaments shorter, and so help to cure.

Believing that direct muscular exercises

alone do positive harm to the great majority of cases, his treatment was directed to:

1. The patient's general condition; improved by means of fresh air, fresh food, and, as a rule, fresh clothing, made to allow of, more particularly, chest development. Medicinally, by means of the hypophosphites, cod-liver oil, bland preparations of iron, etc.

2. Getting the spinal column straight by means of manual pressure, mechanical pressure, Barwell's rachilysis, Barwell's lateral sling, and Volkmann's sloping seat; also by means of weight pressure.

3. Keeping up the improved position by means of the apparatus prescribed at the City Orthopedic Hospital and devised by the late A. T. Chance. It is an adaptable metal splint and acts chiefly as a spinal extension.

Between the two shoulders is a metal plate, having attached to it two straps which pass through the axilla and brace back the shoulders; it is joined to a perpendicular slotted rod which passes downward to a crescent-shaped metal band (pelvic girdle) joined in front by a strap and situated on a level between the crest of the ilium and great trochanter; over the convexity of each curve a plate is accurately adjusted by means of short metal arms which connect the plates to the perpendicular rod. A broad abdominal belt completes the splint. All parts in connection with the skin are thickly padded. Accurate adjustment is made by means of wrenches and a key for the nuts. The curved plates can be moved up and down and laterally and then fixed by the key, whilst greater nicety of position can be obtained by wrenching the short arms or the rod. At the first sitting the splint must fit perfectly, and from time to time be altered as improvement progresses, readjusted, and the better position kept up. It does not fix the column as in a vice, but always allows of a slight amount of muscular action which is sufficient to bring about a lessening of the curves in the great majority of cases, more especially when combined with other means. The patient should be directed to "get away from the plates," as every time she does so she is in a better position, and when she drops back cannot resume a more faulty position than the splint will allow. When this becomes somewhat habitual the splint must be again readjusted, and so on, until the cure is complete. It should be worn, as a rule, at all times, night and day, and only taken off for douching and exercises. In extremely severe cases, where cure is out of the question, the splint is of the greatest comfort to the patient, and prevents any increase of the deformity. Adaptability, lightness, cleanliness, durability, and great efficiency are its chief merits.

Under the age of five years a leather or gutta-percha splint, suitably padded, is sufficient to overcome the curves.

4. Special exercises were ordered for each weak muscle or group of muscles until the spine was straight; then general muscular exercises were given to assist in keeping it in position.

5. Other aids were massage, galvanism, and rubber exercisers.

The ease with which any case of lateral curvature of spine is treated depends on the following:

1. Intelligence and willingness on the part of the patient.

2. The care and help of parents or friends.

3. The assistance of the surgeon.

A CASE OF OBLITERATION OF THE RIGHT URETER BY A CALCIFIED FIBROID; REMOVAL OF FIBROID AND IMPLANTATION OF THE URETER INTO THE BLADDER.

RICHARDSON (*Boston Medical and Surgical Journal*, vol. cxliv, No. 4, 1901) operated on a woman suffering from an abdominal tumor. On exposure the tumor proved to be a fibroid of the uterus, upon which, or a part of which, was a large cyst. The tumor was either a fibrocyst of the uterus, or a uterine fibroid in close connection with a cyst of the broad ligament. It was deeply and broadly attached, and separation seemed impossible. The deeper portions in the right side of the pelvis were evidently calcified, being of stony hardness.

Separation of the tumor became more and more difficult as the calcified portions were reached. The areas of the tumor deep in the right broad ligament were closely attached to the right and anterior portions of the pelvis. Separation was made with the fingers carefully pressing between the capsule of the tumor and contiguous structures. When the solid and calcareous masses were reached, enucleation became still more difficult. It was at this point in the operation that clear fluid was noticed escaping rapidly and in large amounts from the depths of the dissection.

The orifice from which this fluid was flowing was easily recognized and its edges grasped. Dissecting backward, it was found to be the right ureter, which apparently ended at the separated calcified masses. Beyond this point, which was perhaps an inch or more from the bladder, no distal orifice of the ureter could be found, though most careful search was made for it. Above the orifice the ureter was dilated and tortuous, and the pelvis of the corresponding kidney much dilated. It was supposed that the injury to the ureter was caused by a transverse tear, the ureter being presumably situated at an angle with the plane of the separated surfaces. It seemed, however, perfectly evident, finally, that the ureter ended at the plane of cleavage, and that separation at that plane tore across the obstructed end. However that may be, the problem was not unlike that of a divided ureter, except that end-to end suture was impossible, for no distal end could be found. It was fortunate perhaps that end-to-end union was impossible, for such an operation deep in the pelvis is not likely to succeed. The proximal end for one inch or more was freed from the resisting tissues in which it was embedded until it could be brought easily to the collapsed bladder, into which about half an inch of the lax ureter was thrust. The bladder about the ureter was then carefully and accurately sutured to the side of the ureter, the end of which was of course projecting about half an inch into the bladder. The sutures were of fine silk applied interruptedly. Separation of the tumor at the left soon demonstrated that it made a part of the sigmoid flexure. Removal, therefore, left a gap in that viscus, which was closed by a few silk sutures.

The whole operation was extremely difficult. Had not the ureter and the bowel been involved, enucleation of the tumor itself would have seemed sufficiently formidable. With the added complications, recovery seemed too much to expect. Fortunately, the most unpromising cases often do the best, and this was one of them, for convalescence proved—to use a much overworked word—uneventful.

The author's plan in pelvic surgery has made operations of ureteral repair extremely infrequent. This plan, which has everything to commend it, is to make the dissection of the deep pelvis, like that of the deep neck, in the full light of day, where every structure can be recognized as the dissection proceeds. The cases in which this deliberate dissection cannot be made, or in which the structures are too changed for recognition, are extremely infrequent.

REMARKS ON THE TECHNIQUE IN DEALING WITH THE PEDICLE IN THE REMOVAL OF INTRAPELVIC GROWTHS AND STRUCTURES.

Dr. RICHARD R. SMITH (*American Journal of Obstetrics and Diseases of Women and Children*, December, 1900) reports that during the past two years a considerable number of cases have come to his notice in which he believes an improper treatment of the pedicle in work upon or involving the appendages has led to unpleasant results. These women had all been operated upon, and a tumor or diseased tubes and ovaries (a part or all) had been removed. It has brought forcibly to his mind the necessity of a proper technique in removing pelvic structures or growths, if we are to expect to prevent in our patients those unpleasant after-symptoms which have spoiled so many otherwise satisfactory results.

The faults usually committed are three: (1) Use of silk; (2) ligating tissues *en masse;* (3) leaving too short a pedicle. In consequence we have left a condition about the stump which results in persistent pain, rendering the patient often more miserable than the original disease.

1. Use of silk. Silk has been replaced by catgut in the hands of most operators. It may be securely tied with a little more readiness than catgut, but care in tying the latter makes it equally as safe as silk. The use of enormous silk ligatures for the securing of the vessels the size of the ovarian or uterine seems entirely uncalled for. The fistulæ which have followed the use of these ligatures have been not only a source of distress, but have been the cause of death in not a few instances where operations have been undertaken for their removal. Aside from this, silk ligatures add greatly to the induration and adhesions about the stump, and so cause pain.

2. Next to the use of silk in its bad effects comes the method of including in the ligature large masses of tissue. This may be not only a cause of many dense adhesions, but by drawing together the structures of the broad ligament the uterus may be displaced.

3. In removing tumors it has commonly been the habit of most surgeons to tie off the pedicle close down to its origin. In doing

this considerable tissue has been drawn together, the broad ligament has been shortened, and in consequence the uterus eventually drawn from its normal position. When the pedicle is very short, or when there is really no pedicle at all, by cutting close to the tumor puckering of the tissues may be avoided, the bleeding controlled by ligatures applied to the blood-vessels alone, and the raw surface covered by drawing the adjacent peritoneum over it with a running catgut suture. When the pedicle is long, by tying in small sections close to the tumor tension is avoided and bleeding more safely controlled.

CARCINOMA OF THE PENIS.

HOOTON (*Indian Medical Gazette*, vol. xxxv, No. 12, 1900) makes the following remarks upon this subject:

In view of the special characters of carcinoma of the penis, it seems that total removal of the organ is the best treatment as a rule. The disease spreads rapidly in the cavernous tissue, and breaks down early, while, on the other hand, the glands do not appear to be often involved, and the patient's chance of recovery after a radical operation is good. It is noteworthy that the author has seen no case in which the disease had not made considerable advance, and in some cases it would have been difficult to obtain a sufficient stump for the ordinary flap operation. As regards the operation, there are one or two points which may perhaps be mentioned; as Captain J. B. Smith, who performed successfully this operation on a patient of middle age, has pointed out, it is an advantage to remove the growth as a preliminary, after transfixing the penis with a needle and applying an elastic ligature above it. This ligature does not interfere with the passage of a staff, and the urethra is more readily found. The operation area can then be cleaned with a better prospect of success than when in proximity to the ulcerating mass.

The median incision should extend to a point about two inches from the anterior margin of the anus, and thus lies over only about one inch of the triangular ligament. While separating the halves of the scrotum some dilated veins are often divided, but the only difficulty in arresting hemorrhage is met with when the arteries of the corpora cavernosa and the dorsal arteries are cut. These, as they emerge from the triangular ligament, are sometimes awkward to secure.

A CASE OF ADDISON'S DISEASE SUCCESSFULLY TREATED BY TABLETS OF THE SUPRARENAL CAPSULE.

EDEL (*Münchener Medicinische Wochenschrift*, No. 52, 1900) reports a typical case of Addison's disease treated with markedly beneficial effect by tablets of the suprarenal capsule. The improvement, which was noted by a number of observers, continued for a month and a half, when unfortunately the patient perished of tuberculous meningitis.

The man was thirty-three years old, and began to suffer in January, 1900, from a sensation of pressure located between the shoulder-blades. Following this he became weak and unfitted for his work. In April his skin was markedly bronzed. Two large lymphatic glands were noted in the supraclavicular fossa. The disease was steadily progressive.

Two or three days after beginning the tablets there was a distinct improvement of both subjective and objective symptoms. The patient was able to resume his occupation, and the brownish discoloration steadily grew less. At the time meningitis developed, the discoloration of the skin had almost completely disappeared. With the onset of inflammatory symptoms the suprarenal tablets were discontinued; the bronzing promptly returned, though the patient lived but seven days.

The autopsy showed a tubercular meningitis, extensive tuberculosis of the lymphatic glands, and a partial encapsulation of the solar plexus and semilunar ganglion in scar tissue. In the right suprarenal capsule there was a small tuberculous nodule.

THE TREATMENT OF GANGRENOUS HERNIA BY PRIMARY RESECTION.

HOFMEISTER (*Beiträge zur Klinischen Chirurgie*, Bd. xxviii, Heft 3, 1900) operates upon gangrenous hernia under local anesthesia, employing the infiltration method, and reenforcing this with moderate doses of morphine. After opening and thoroughly disinfecting the hernial sac, the aperture through which the gut has escaped is enlarged, an assistant guarding against the sudden slipping back of the necrotic intestine when tension has thus been relieved. The gangrenous portion of the gut is then resected, and a lateral anastomosis is accomplished, the intestinal ends being closed. Out of sixty-four herniotomies with a general

mortality of 21 9, there were twenty-five gangrenous cases; of these, forty per cent died.

From a statistical study it would seem that gangrenous hernia treated by the formation of an artificial anus is attended by eighty per cent mortality, whilst that treated by primary resection is attended by 23.5 per cent mortality. As this operation saves most lives, Hofmeister has no hesitation in asserting that primary resection is the one of choice.

EMPYEMA TREATED BY REPLACING THE EXUDATE BY A NEUTRAL FLUID.

H. P. RITCHIE (*St. Paul Medical Journal*, vol. iii, No. 1, 1900), deterred from resecting a rib by the depressing effect of this operation in tubercular pleurisies in young and weak children, tried Lerascheff's method of replacing a purulent exudate with a neutral fluid. The child was in such condition that an operation was unjustifiable. He aspirated four times the first day, and each time injected normal salt solution, warmed. The last time only a turbid fluid returned. Under medical treatment of guaiacol and cod-liver oil, and without further surgical procedure, the child rapidly recovered.

FOREIGN BODY IN BRONCHUS TREATED BY INTRATRACHEAL INJECTIONS.

H. TAYLOR (*St. Paul Medical Journal*, vol. iii, No. 1, 1900) gives the following record in regard to a little girl ten years of age, who had been sent to him by her physician to have her tonsils removed and her throat treated because of an obstinate cough.

The family history was tubercular. The patient had never had a severe illness, and had always recovered promptly from the mild attacks of infantile disorders which she had had. She was a confirmed mouth-breather. Present illness dated from the past summer, and the mother thought from a visit to a dentist during the month of August. In pulling a tooth the dentist's forceps had slipped. The child had had a violent choking and coughing attack, which subsided in a short time, but the tooth was never found. Since that time the child had had frequent paroxysms of violent coughing At first the expectoration was stained with blood. Of late there had been no blood, but the expectorated matter had a very offensive odor; the child was feverish every day, had become extremely emaciated, and her sleep was disturbed by paroxysms of coughing and by night sweats. Inspection showed a poorly nourished child, with pinched features, dull and listless expression.

Temperature was 103°, pulse very rapid. Left tonsil and adenoids were found enlarged, but there was no acute inflammation to account for the fever. On physical examination of the thorax, a small area was found beneath the angle of the scapula where vesicular respiration was absent, except on very deep inspiration, when it was weak and distant and partook of a bronchovesicular character. No dulness could be found. Examination with the Roentgen rays showed an indistinct cloudiness at the base of the left lung that was distant from the heart shadow. The diagnosis was that the tooth was in a bronchus in the lower lobe of the left lung, and was the cause of the child's very serious condition. An abscess was probably forming, and the prognosis was extremely grave.

The only treatment was intratracheal injections of oil containing menthol and guaiacol, with a tonic and a sedative for the night. After several intratracheal injections, which had reduced the number and severity of the paroxysms, and diminished the intensity of the odor, the child coughed long and violently and expelled the tooth, which was embedded in a mass of pus and mucus. It was an irregularly cone-shaped milk-tooth (canine), slightly over a centimeter in length and half a centimeter in its greatest transverse diameter.

The patient made a rapid and uninterrupted recovery, except that when the tonsil was taken out some weeks later she had a number of free hemorrhages, which recurred at short intervals for eight hours, when she lost a great deal of blood. When last seen she was the picture of health and had not a single symptom that anything had ever been wrong in her lung.

The points of interest in this case are that several physicians had examined the child, but none of them thought that the tooth was in her lung, although the history of a lost tooth, a laryngeal spasm, with blood-stained expectoration for several days, is a train of very suggestive events and symptoms.

In regard to the treatment, the question of interest is, had the tracheal injections anything to do with the expulsion of the tooth? It seems probable that the oil may have softened the accumulation of pus and mucus which surrounded the tooth, and also that

the menthol and guaiacol may have reduced the swelling and congestion of the mucous membrane, thus allowing of the easier expulsion of the foreign body.

In conclusion it would seem proper to urge the use of intratracheal injections when the presence of a small foreign body in the lung is suspected. Larger bodies must be removed mechanically, either with long forceps or coin catchers through a low tracheotomy wound, or after the formation of an abscess, through an opening in the chest wall; but smaller bodies, which do not so readily become hopelessly impacted, are often coughed up, and the injections of oil can but hasten and assist the process.

SUTURE AND WOUNDS OF THE HEART.

WUALCKER (*Revue de Chirurgie*, December, 1900) has in the last twenty years seen five cases of stab wounds of the heart which recovered. Two cases in the last year were treated by suture. Both perished. Two others treated without suture recovered.

The first case treated by suture was twenty-seven years old and had attempted suicide by means of a knife, the blade of which was two and a half inches long. Over the heart there were twenty stab wounds, and in the fourth intercostal space there was an area the size of a dollar in which there were so many stabs that the individual wounds could not be distinguished one from the other. Air was escaping with each expiration, making a blowing sound, and there was free bleeding. On the left side of the chest breathing could be heard only at the apex.

On enlarging the opening in the chest the heart could be seen pressed backward and to the left. One intercostal artery was tied, the pleural cavity was emptied of blood as far as possible, and the opening was tamponed. None the less bleeding persisted so that the fourth rib was resected and the third rib cut through. The borders of this wound were then strongly retracted, the pericardium was seized in forceps, was drawn forward and opened, and the apex of the heart was pressed up into the wound by means of the fingers passed behind it. Eight stabs were noted on the anterior surface of the left ventricle; these were bleeding moderately. A probe passed in showed that the wounds had penetrated into the ventricle; the coronary arteries were not injured. The stabs were sewed by silk sutures passing completely through the heart wall. In all eleven sutures were inserted. The pericardium was then secured to the external wound, and its cavity was drained by iodoform gauze strips. This entirely stopped the bleeding from the heart and the pericardium. The left pleural cavity was then tamponed and the wounds closed. The bleeding, however, persisted. The small lobule of lung adhering to the pericardium was then ligated and removed. The patient died, however, thirteen hours after the injury. Upon autopsy there was complete atelectasis of the lung and numerous thrombi on the inner ventricular surface indicating the position of the wounds.

Another patient, fifty-three years old, was stabbed just below the costal border. On abdominal section it was noted that blood came from an opening in the diaphragm, which on being explored by the finger showed that there was a wound of the heart. The ribs were resected from the fourth to the seventh over the heart region, opening the left pleural cavity, which was at once closed with gauze tampons. The pericardium was then seized and drawn out; the point of the heart was pushed forward by a finger introduced through the diaphragm opening. Through the wound in the heart there was a stream of black blood spurting with each systole. The first stitch which was inserted cut through at once, as did the second. The stitches could only be made to hold by including in them the pericardium and gauze pledgets. It was with great difficulty that the hemorrhage was stopped. The patient died three-quarters of an hour after operation.

The third patient attempted suicide by inserting a knife in the third intercostal space a little external to the sternal border. There were no immediate signs of a perforating wound, but on the second day the patient complained of severe pain, and the dressing was found soaked with blood. On removal of the bandage there was a little bleeding from the wound with each respiration, and a dulness over the lung posteriorly reaching as high as the level of the scapula above this, and in front there was a tympanitic sound. A probe passed downward and forward through the fourth intercostal space into the pleural cavity. Incision showed a wound an inch long in the pleura of this space through which the blood was escaping. The incision was then carried through the pleura of this space from a fingerbreadth external to the sternum to the axilla. By forcibly drawing the fourth and fifth ribs apart, the pleural cavity could be very well seen, and the hand could be intro-

duced for the purpose of exploring the entire lung and bringing it within view. No lung wound was found, but the bleeding was seen to come from a wound in the pericardium, the blood flowing out with each diastole. Corresponding with the pericardium wound there was a depression of the heart muscle, apparently of the ventricle. The clots were cleared from the pleural cavity and the intercostal wound was packed with gauze. Suppuration followed, and required drainage. The patient, however, recovered.

Another patient stuck a needle in her heart. She recovered without incident.

Another patient stabbed himself with a table knife in the fourth intercostal space about an inch within the mammillary line. The external wound was cleansed and drained, and he died. At the autopsy a perforating wound two-fifths of an inch long was found in the left ventricle, but there was a large amount of blood in the pericardium and the left pleura, together with left-sided pneumothorax.

The author believes that the best way of exploring the heart for suture is to resect the cartilage of one rib and cut through as many others as needful, employing thereafter powerful retractors for the purpose of rendering the wound patulous.

NON-CANCEROUS TUMOR OF THE STOMACH.

VON HACHER (*Centralbl. f. Chir.; Edinburgh Medical Journal*, January, 1901) draws attention to the fact that tumors originating in the connective tissue or muscular coats of the stomach present clinical features which are quite different from those of cancer. The tumors attain a much greater size, and it is often difficult to recognize whether they originate in the stomach, or in the omentum, mesentery, liver, kidney, or spleen. Stomach symptoms are either absent altogether, or they are such as might be caused by any tumor pressing on the stomach; in exceptional cases, when they involve the pyloric segment, they may cause stenosis and characteristic vomiting. The tumors met with include myoma, fibromyoma, sarcoma, fibrosarcoma, and myxoma. In those which project into the general peritoneal cavity the treatment varies with the nature of the tumor; in malignant forms, a portion of the stomach wall must be removed along with the tumor. Von Hacher demonstrated a female patient, aged twenty-six, in which he had removed a tumor (myxoma), as large as a man's fist, growing from the anterior wall; he resected the portion of stomach involved by the growth; the patient was perfectly well twenty-two months later, and had recently married.

THE CAUSATION, PREVENTION, AND TREATMENT OF POSTPARTUM HEMORRHAGE.

G. F. BLACKER (*The Lancet*, No. 4035, 1900) discusses the above subject as one of great interest to medical practitioners.

The appalling suddenness of the accident and the great risk to life entailed upon the patient render it a matter for congratulation that cases of postpartum hemorrhage are not met with more frequently, and that its occurrence can usually be avoided by proper prophylactic treatment.

In the University College Hospital maternity department during the period from August 1, 1893, to December 1, 1900, 15,130 women have been delivered. Of this number 139, or one in 108, have suffered from some degree of postpartum hemorrhage. In 100 of these cases, or one in 151, the amount of blood lost was not very excessive and did not cause any marked symptoms; while in eight instances, or one in 1881, the patient's life was endangered, two of these cases ending fatally—a mortality of one death in 7565 deliveries. Amongst 20,378 confinements in the Charité Hospital in Berlin only two deaths occurred from postpartum hemorrhage—a mortality of one in 10,189 Veit, who has collected a large number of statistics in addition to these, found amongst 47,065 labors only five deaths from atonic postpartum hemorrhage—a proportion of one in 9413 confinements. Although the death-rate from postpartum hemorrhage is therefore relatively small, yet the total number of fatal cases must be considerable. Dührssen states that 300 women die annually in Prussia from this cause, while the frequency of cases causing severe symptoms—viz., one in every 488 confinements in the University College Hospital maternity department—renders this accident of labor one of much importance.

Blacker proceeds to discuss postpartum hemorrhage under the three headings of causation, prevention, and treatment, and confines his remarks to the variety due to atony of the uterus.

Before passing on to consider its causation he calls attention to a few facts concerning the mechanism of the third stage of labor. The anatomical studies of Barbour, Pinard,

and Varnier have demonstrated that at the end of the second stage of labor the placenta is still completely attached to the uterine wall. Separation of the placenta begins with the third stage of labor, and is due to the contraction and retraction of the uterine muscle. It is this latter property of active retraction—or what may be termed the tonicity—of the muscle which prevents the occurrence of hemorrhage when the uteroplacental vessels are torn through during the separation of the placenta. The absence of inhibition of this power of retraction is the chief cause of postpartum hemorrhage, giving rise as it does to atony of the uterus, or inertia uteri. It is because the retraction of the uterine muscle is prevented by the presence of the fetus *in utero* that premature separation of the placenta is so often accompanied by severe hemorrhage.

The causes of postpartum hemorrhage are, therefore, to be sought in the conditions giving rise to uterine inertia. These may for convenience be classified as follows:

1. Feebleness, exhaustion, or malnutrition of the patient.

2. Overdistention of the uterus and undue stretching of the uterine muscle, such as occurs in cases of hydramnios or multiple pregnancies.

3. Exhaustion of the uterine muscle from frequent child-bearing and prolonged labor. One of the commonest causes of postpartum hemorrhage is the application of forceps and the delivery of the child when pains are absent and the uterus is exhausted and in a condition of secondary uterine inertia—the so-called "temporary passiveness" of Braxton Hicks.

4. Pathological conditions of the uterine wall. The presence of fibroid tumors is especially liable to cause postpartum bleeding if the placenta be attached over the site of the tumor.

5. Some mechanical hindrance to the contraction and retraction of the uterus, such as the retention of the placenta *in utero* or the presence of adhesions between the uterus and surrounding structures.

6. Too rapid emptying of the uterus, either by the application of forceps or after version.

7. Extreme nervous depression and shock such as may follow the birth of a dead child may account for uterine atony in some cases.

8. The administration of chloroform has often been regarded as a cause of uterine inertia.

9. Another possible cause of excessive bleeding after delivery is deficient coagulability of the blood. Such a condition occurs in cases of septic infection and hemophilia.

In discussing the preventive treatment of postpartum hemorrhage it is necessary to consider the treatment of the patient during pregnancy and during labor. It is important that all patients should enter upon labor in as favorable a condition of health as possible. Attention must therefore be paid to the general health in all cases where this may be necessary. If the patient has lost excessively at her previous confinements small doses of ergot and strychnine combined with iron or hydrochloric acid may be given during the last month or so of pregnancy, as recommended by Dr. Lombe Atthil. Women with a history of hemophilia should be given calcium chloride in ten-grain doses three or four times a day for the last two or three weeks preceding delivery. Although, as we have seen, it is very doubtful whether albuminuria *per se* is a cause of postpartum flooding, yet for obvious reasons it must be treated, and the patient should be placed upon a strict milk diet. The great value and importance of preventive treatment is well exemplified by Spiegelberg's statement. He writes: "I certainly do not exaggerate when I say that severe postpartum hemorrhage is almost without exception the fault of the attendant."

In no less than 50 of the 319 cases occurring in the University College Hospital maternity department the child was born before any assistance arrived. In six out of the eight severe cases this happened, including the two cases in which the women died.

The prevention of postpartum hemorrhage is of even greater importance than its treatment, and it may with truth be said that the skill of an accoucheur can be estimated by the number of such cases that occur in his practice. During labor, it is often good treatment to rupture the membranes, even before the cervix is fully dilated, in cases where we fear the occurrence of hemorrhage after delivery. During the second stage of labor care must be taken not to allow the uterus to become exhausted, and to recognize as early as possible conditions likely to cause obstructed labor. When the uterus is in a condition of secondary inertia, the mistake of delivering by forceps must be avoided and the case treated by opium and rest, while in cases of obstructed labor the necessary measures must be at once adopted to overcome the obstruction.

When toward the end of the second stage the pains are feeble and no progress is being made, ergot in doses of from half a drachm to one drachm of the liquor ergotæ ammoniatus may be given, if it is perfectly certain that the labor is an absolutely normal one. The practice of giving ergot before the birth of the child is undoubtedly in certain cases a very valuable one, and is regarded at the present time with more disfavor than it deserves. This method is especially applicable in cases where deep anesthesia is necessary in order to complete delivery.

It is, however, in the proper management of the third stage of labor that the secret of preventing postpartum hemorrhage lies. Too often it occurs as a sequel of hasty and premature attempts to express the placenta, with the result that a portion of the placenta or membranes is left *in utero*. A sufficient amount of time must be allowed to elapse to permit of proper separation of the placenta, and under ordinary circumstances no attempt should be made to express it until twenty or thirty minutes after the completion of the second stage of labor. From the time the child is born until the placenta is expelled one hand should be kept continuously upon the uterus. The dorsal position has many advantages during the third stage of labor, but in cases where bleeding occurs the necessary manipulations are most readily carried out with the patient on her side.

At the end of the second stage the fundus of the contracted uterus is usually at the level of the umbilicus. Toward the end of the third stage it will be found to have ascended until it lies from one and a half to two inches above the umbilicus. This indicates that the placenta has been separated and expelled from the upper uterine segment into the lower uterine segment, and that it is in a condition in which it can be easily expressed.

It is more particularly in cases where it is necessary to revive an asphyxiated child, or where the medical attendant's attention is directed away from the mother, that severe postpartum hemorrhage is likely to occur. It is impossible for a uterus to relax completely unperceived if it be watched with the hand during the whole of the third stage of labor. In any case where hemorrhage has occurred, or where the uterus shows a tendency to again relax, it must be carefully supervised until it is certain that contraction and retraction are complete and permanent.

When postpartum hemorrhage does occur the medical man must have a plan of treatment ready and be able to carry it out rapidly and efficiently. The practitioner does not do justice to his patient nor to himself unless he has ready at hand the few appliances necessary to enable him to deal with such a complication should it arise.

The best method of treating a case of severe hemorrhage will depend upon whether the placenta is still *in utero* or not. The ordinary treatment may be outlined as follows: If the placenta be retained, it must be at once expressed, or if this is found impossible, removed by the hand. A hypodermic injection of ergotin if ready may be given, and the uterus kneaded through the abdominal wall, while the nurse is ordered to prepare a hot douche. If the hemorrhage be profuse and the uterus does not respond to the kneading, bimanual compression may be carried out until the douche is ready. In the small number of cases where the hot douche fails to excite any uterine contractions and the tone of the muscle is entirely lost, recourse must be had to continued bimanual compression, to plugging the uterus with gauze, or to the application of some styptic, such as perchloride of iron, to produce clotting of the blood in the vessels.

We may now consider these various methods of treatment rather more in detail.

It is impossible for the uterus to contract and retract while the placenta is still *in utero*, and therefore its removal must be undertaken before any attempts are made to excite uterine contractions. Whenever possible this should be effected without the introduction of the hand into the uterus. No time, however, must be lost if expression fails, and when necessary the hand must be passed into the uterus and the placenta and all blood-clot removed. The introduction of the hand has the advantage that it is a powerful excitant of uterine action. Ergot takes too long a time to act to be of much value in the treatment of a case of severe bleeding. In all cases where it is ready a hypodermic injection of ergotin may be given so that the assistance of its action may be obtained in rendering permanent the uterine contraction and retraction procured by other more speedy methods of treatment. In the less severe cases kneading the uterus is often all that is required to excite contractions and to arrest the bleeding. In the more severe cases this is not sufficient, and in these a hot douche must be given.

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observed in employing this form of treatment. The water must be used in large quantities and at a temperature of not less than from 110° to 120° F. The uterine tube should be carried into the uterus up to the fundus, and the whole of the inner surface of the organ irrigated by the fluid. This is rendered more easy, and at the same time the hemorrhage may to some extent be checked, if the uterus be drawn down to the vulva with a vulsellum. This method of drawing down the uterus is at times alone sufficient to arrest the bleeding, no doubt by the kinking and compression of the uterine arteries which it causes. Some antiseptic may be used in the water, such as creolin or iodine, but plain hot water will do perfectly well in an urgent case.

Bimanual compression of the uterus is the best method to employ when the hot douche is not immediately available, or where it fails to excite uterine contractions. The uterus seized by the hand on the abdomen is compressed against the anterior abdominal wall, the posterior surface of the symphysis pubis, and the other hand placed in the anterior vaginal fornix. The pressure should be exerted as far as possible upon the placental site; no great force is required, and it can be continued for a considerable length of time, although at the cost of a great deal of fatigue on the part of the attendant. The chief objection to this method is the difficulty sometimes experienced in grasping the completely relaxed uterus between the two hands. Whether the fist or the extended hand be introduced into the vagina is a matter of indifference so long as the anterior and posterior walls of the uterus are kept firmly in contact. All the 139 cases of hemorrhage occurring in the University College Hospital maternity department were treated by the hot douche or bimanual compression. In no case near full term was the uterus plugged with gauze or injected with styptics.

As a routine means of treatment plugging the uterus is certainly inferior to bimanual compression. There are, however, two classes of cases in which the latter method is specially indicated — viz., where the uterus is prevented from contracting and retracting by the presence of adhesions or by the existence of fibroid tumors in its wall. Schauta has suggested that in some severe cases of hemorrhage the uterine vessels are atheromatous, and in any instance where this condition is suspected gauze plugging would no doubt be the best treatment. Schmit has recorded a case of this kind in which the patient died from uncontrollable hemorrhage, although the uterus after plugging had failed was ultimately removed in an endeavor to arrest the bleeding. On microscopic examination well marked hyaline degeneration of the vessels at the placental site was found. Plugging the uterus may be carried out in the following way: The uterus is drawn down to the vulva with a vulsellum—a maneuver which has the advantage of assisting to arrest the hemorrhage—or is pushed down by pressure through the abdomen. The left hand is introduced up to the fundus and all blood-clot removed. The strips of gauze or of any other available material wrung out of an antiseptic lotion are passed into the uterus under cover of the fingers of the left hand by means of a pair of uterine dressing forceps or the intra-uterine douche tube, and the cavity firmly and completely packed from above down. Special care must be taken that no space in which blood could accumulate is left between the fundus and the gauze. In bad cases the vagina should also be plugged. A large pad of wool may then be placed over the vulva and a binder and T-bandage applied with considerable pressure. The plug is taken out at the end of from eighteen to twenty-four hours. If hemorrhage continues the plug must be removed, the uterus washed out, and then replugged.

Since 1893 there has not been any case of postpartum hemorrhage alone in the maternity department of the University College Hospital in which plugging the uterus has been required. This method has, however, been frequently employed for hemorrhage after abortions and other conditions, and is of great value in the treatment of some cases of rupture of the uterus.

The last mode of treatment the author mentions is the application of powerful styptics to the interior of the uterus, a method which at the present day is almost superseded by gauze plugging. The drug most commonly used is the liquor ferri perchloridi fortior of the strength of one part to three parts of water. It may be injected into the uterus by means of a tube, or the interior of the organ may be washed out with a sponge or wool dipped in the solution. It is undoubtedly a most efficient means of producing thrombosis, but its dangers outweigh its advantages. It is extremely likely to produce sloughing, septic thrombosis, and general septic infection. Turpentine and vinegar may also be employed in the same way.

In cases where the hemorrhage has been successfully arrested but where the loss has been excessive, the condition of the patient is usually very grave, and energetic after-treatment is required if her life is to be saved. The greatest reliance is to be placed in the treatment of such cases on the hypodermic injection of strychnine, ether, and digitalin. Ether may be injected in doses of ten minims every ten or fifteen minutes until five or six doses have been given. Where cardiac failure is very marked, hot water or normal saline solution should be injected. The former may be given by the rectum; the latter may be injected under the skin or into a vein. In severe hemorrhage the most valuable of these methods is venous transfusion. Infusion of hot water or saline fluid has been carried out in ten of the reported cases—five times by the rectum, four times into a vein, and once into the submammary connective tissue. The amount of fluid employed varied from one to five and a half pints. One patient was transfused twice, three pints being introduced into one arm and two and a half pints into the other.

Rectal injections of hot water with or without brandy are of great value in cases where the circulation is not too feeble. They act as a powerful stimulant, and in such cases the fluid is no doubt absorbed. In many cases of severe hemorrhage accompanied by a very feeble action of the heart, it is quite certain that no absorption occurs either from the stomach or bowel. In such cases venous transfusion must be carried out, and gives exceedingly good results. The author's experience of subcutaneous transfusion in cases of septic infection and other conditions leads him to regard it as too slow a method to use in cases of hemorrhage. Common salt can be obtained in any household, but it is best to carry it as a chemically pure sodium chloride or as a concentrated solution in a sealed glass tube. The solution employed should contain one drachm of salt to the pint, and must have a temperature of from 101° to 102° F. It will cool down to blood heat while passing through the transfusion apparatus. Care should be taken to see that the temperature is maintained during the operation, and this can most easily be done if the solution be prepared in small quantities at a time. It should in all cases be filtered through muslin before use. If it be necessary to repeat the transfusion another vein must be opened. When the patient has been revived and the immediate danger of death from syncope is staved off, the extreme restlessness and headache that so frequently follow may be treated by large doses of opium or morphine. Any further tendency to syncope is best treated by raising the foot of the bed and the administration of liquid food and stimulants in small quantities at frequent intervals. The great risk of subsequent sepsis must not be forgotten, and the convalescence of such patients is of necessity a slow process.

INFECTIVE PAROTITIS AFTER ABDOMINAL SECTION.

ELDER (*Lancet*, Jan. 19, 1901) compares a case of double parotitis after abdominal section from which apparently two other cases of parotitis originated, reported by Addenbrooke, with a case developing under his care.

Forty-nine days before the onset of the first symptoms the patient's brother in the same house was attended for mumps (double parotitis), but the source of infection in this case could not be traced. The two brothers had been living in the same house from that date until the onset of the appendicitis, but they had occupied the same room two days before the appendicitis commenced, and nine days before the first parotid became inflamed.

Elder thinks that one can hardly exclude infection from the first case, despite the lapse of seven weeks, as a cause of the second case.

Considered with the cases reported by Addenbrooke, it is found that the opposite condition from Addenbrooke's cases obtained, viz., there was a case of infective parotitis in the same house seven weeks before the onset of double parotitis following an abdominal wound, while in Addenbrooke's cases a double parotitis followed an abdominal section, and after coming in contact with the patient inflammation was set up in the second patient's parotids. This second person apparently infected a third person.

Elder doubts whether his second case was one of true mumps or parotitis following an abdominal wound, and whether Addenbrooke's first case was one of parotitis caused by the abdominal wound or a case of true mumps due to infection the source of which he was unable to trace.

ENLARGEMENT OF THE PROSTATE.

FREYER (*Lancet*, Jan. 19, 1901) believes that in certain cases of enlarged prostate an operation is desirable, but that in the majority of cases the only treatment is cleanly and judicious catheterism, combined with careful hygienic living. He uses a large steel dilator as far as the bladder once a week, and leaves it in position for ten or twelve minutes, commencing with a No. 11 or No. 12, English scale, gradually advancing to No. 15 or No. 16, in cases where decided symptoms of obstruction exist, and the bladder contains no "residual" urine, or only an ounce or two. This probably does not stay the progress of the disease, but the periodical introduction of the dilator causes absorption of the gland around the urethra and maintains the patency of the channel, thus staving off for an indefinite period the necessity of recourse to habitual catheterism. A liquid extract of ergot combined with a saline seems to relieve congestion in these cases.

Habitual catheterism must be employed when the residual urine amounts to between three and four ounces. The catheter should be passed once in twenty-four hours if the urine amounts to four ounces or less; the best time being at bedtime. It should be used twice daily if six ounces is retained; three or four times daily if eight or ten ounces is retained. The catheter, when power of voluntary micturition is lost, should be used generally every four hours. In all cases the urine should be drawn off before pain or marked discomfort is felt; otherwise congestion of the prostate and bladder resulting in cystitis will be produced.

The patient should be taught the use of the catheter. The best instrument for habitual employment is a soft coudée, No. 7 to 9 E. It should be used by the patient while standing, unless he is very infirm. It is held perpendicularly while its end is introduced into the urethra, is then gradually depressed into the horizontal position as it glides along the canal over the obstruction and into the bladder, the curved end being directed upward toward the roof of the urethra. When the middle lobe is much enlarged a bicoudée catheter or a well curved one terminating in an elbow may be necessary to overcome the obstruction.

When circumstances require the use of a metel catheter, the surgeon and not the patient should employ it.

Whatever instrument is employed should be kept scrupulously clean. Of the three kinds employed, the metallic and the soft rubber may be easily and effectually sterilized by boiling. Gum-elastic instruments are best cleansed by washing and syringing them through with soap and warm water. They should then be placed in a 1-in-40 solution of carbolic acid for ten minutes [the editor has found that such a soaking in carbolic lotion invariably ruins woven catheters], and placed in boric lotion before use; prolonged application of antiseptics renders them useless.

Before introducing an instrument into the bladder, the foreskin and glans should be well washed with soap and water, and then swabbed with some weak antiseptic lotion. If there be any discharge from the urethra, the anterior part of the canal should be syringed out with warm boric solution.

The catheter, after use, should be washed in soap and water by the patient, thoroughly dried, and placed for future use in a corked glass tube or covered dish. The best way to dry the instruments is to pass them between folds of lint or gauze, in which they may be kept until required.

If the catheters be placed quite dry on trays in an air-tight box with trioxymethylene enclosed between folds of lint, they are rendered quite aseptic in twenty-four hours by the vapor given off, which is really formol in a gaseous form. Before use they should be placed in a boric lotion, as the formol is slightly irritant to the mucous membrane of the urethra.

As lubricant for the instruments, fresh olive oil, or castor oil, or vaselin, may be used. Carbolic acid should not be employed. Guyon's pomade, composed of equal parts of glycerin, powdered soap, and water, with one per cent of phenol or naphthol, is a clean and efficient lubricant.

The diet of the patient should be light, simple, and nutritious, but nothing should be taken that would irritate the urinary tract. The less stimulants the better. Warm clothing should be worn, and cold or wet seats should be avoided. A warm bath is helpful, and is best taken at bedtime. The bowels should be kept open, and there is nothing better for inducing a soft, but not liquid, motion daily than confection of sulphur or senna or equal parts of both. Aloin, licorice powder, and the sulphate of soda are useful, or one of the natural bitter saline waters may be taken in the morning. The enema should be at hand if the other medicines fail to induce a daily motion. If pain be present, an

opiate must be given by the mouth, hypodermically, or as a suppository. Belladonna should not be administered while the bladder retains any expulsive power. Walking or carriage riding is the best exercise. The patient should pursue as far as possible his avocation. Sexual excitement should be avoided.

Many men pass useful and enjoyable lives for fifteen or twenty years after entering on the habitual use of the catheter.

When in elderly men there is difficulty and frequency of micturition with some pain, the urine being turbid, possibly fetid, the patient looking ill and worn-out, and the hypogastric dulness pointing to the presence of a considerable quantity of residual urine, the case must be regarded as one of considerable gravity. The employment of the catheter for the first time in these cases may be attended by severe constitutional disturbances. The examination should be made in a warm room, and the patient should be put to bed; and if constitutional disturbances set in, he should remain there longer than two or three days. The urine should be drawn off gradually, the bladder not being completely emptied for two or three days.

In an advanced state of prostatic disease of this kind, the urine, even when clear and acid on the first introduction of the catheter, generally becomes clouded and finally ammoniacal in the course of a few days, and constitutional symptoms supervene. A rigor will probably occur, or the temperature may rise to 103° or 104° F., profuse perspiration setting in. The normal temperature being reached, the fever may not recur. Sometimes more than one attack of this kind occurs, or the fever may continue for some days, gradually subsiding; but occasionally the patient sinks into a low typhoid state. If the kidneys are much affected, uremia may set in, followed by coma, and may result in a fatal termination. This fever is termed "urinary," "urethral," and "catheter," but its exact cause is unknown. Its treatment is similar to that following instrumentation or operation for stricture of the urethra. When the urine contains pus the local treatment should be the same as that to be described for cystitis.

Cystitis, a common complication of enlarged prostate, should be dealt with in its earliest stage. When the urine becomes cloudy, boric acid may be given in 10-grain doses four times daily. A medical patient has found that 25-grain doses have been more effectual in bringing the urine back to its normal condition than repeated small doses. If the urine becomes decidedly alkaline, the boric acid should be combined with the benzoate of ammonia in 10-grain doses.

When pus forms the bladder must be washed out once or twice daily with disinfectants or astringent lotions. Not more than two or three ounces should be thrown into the bladder at one time. If the cystitis be severe, not more than half an ounce should be used at a time. All lotion should be warmed to 100° F. To cleanse the bladder the most simple and useful injections are a one-per-cent solution of boric acid or a teaspoonful of boroglycerin to four ounces of water. Permanganate of potash solution commencing with 1-in-5000 and gradually increasing it to 1-in-1000, and perchloride of mercury 1-in-10,000, make excellent injections. The sheet-anchor in such cases is nitrate of silver, commencing with a weak solution, 1-in-4000, gradually increasing this to 1-in-750.

For great pain and scalding at the neck of the bladder from local cystitis daily instillations of nitrate of silver are employed.

In complete retention of urine, a vulcanized rubber catheter should be used. If this fails a coudée catheter and a well curved one terminating in an elbow should be tried in succession. If these are unsuccessful, a well curved cylindrical gum-catheter without a stylet should be employed, which may be given any curve at pleasure by dipping it in hot water, and, after bending, into cold water. Finally it may be necessary to employ a silver catheter with a longer curve.

In cases of enlarged prostate of long standing, it may be found that before the bladder is fairly entered a preprostatic pouch is encountered.

Hemorrhage rarely occurs in the early stage of enlargement of the prostate, but is liable to take place in the later stages from various causes. Bleeding may arise from the mucous membrane of the bladder or from the prostate. The treatment consists in perfect rest in bed and the administration of opium. Frequent hemorrhage attended by much pain after exercise in prostatic patients should always give rise to the suspicion of the presence of stone.

The procedures in the operative treatment of enlarged prostate may be classified as follows: (1) Radical operations which aim at removing the obstructing portions of the glands; (2) those undertaken for the purpose of inducing atrophy of the prostate—castration, and excision of the vasa defere-

tia; (3) palliative operations — drainage of the bladder through the perineum, and drainage of the bladder above the pubes.

The division of the prostatic obstruction by galvanocautery has few advocates.

Another operation with a very limited range of application is the removal of a median growth through a perineal opening in the urethra by means of forceps or instruments constructed to punch out a portion of the growth.

Probably the most valuable of the radical procedures for the removal of prostatic growths is suprapubic prostatectomy. The preliminary stage of this operation, cystotomy, is identical with that for the removal of vesical stone or tumor by the suprapubic method. As soon as the bladder is opened, the forefinger of the left hand is introduced and a general survey of the cavity is made. If the middle lobe be pedunculated, it can be removed by clipping the pedicle through, flush with the trigone, by scissors curved on the flat, or by twisting it off with the aid of the forceps. A sessile middle lobe is removed by notching the mucous membrane and submucous tissues on either side of the growth, which is then twisted off by forceps. A prostatic bar or lower portion of hypertrophied collar is similarly removed or cut away by means of Jessop's forceps. A prominent lateral lobe is first grasped by strong catch forceps to render it steady. The mucous membrane at the most projecting part is then snipped by scissors. The opening thus made is then enlarged by the finger-nail and the tip of the finger is introduced. The tumor is enucleated by slowly and carefully separating it from the surrounding tissues. The enucleation, after the snipping of the mucous membrane by the scissors, should be accomplished with the finger-point. Bleeding may be controlled by irrigation with hot boric lotion. If at all profuse the thermocautery should be applied to the bleeding points through a speculum, or the tincture of the perchloride of iron on a sponge. The finger of an assistant placed in the rectum may be of great aid. Sometimes the enucleation may be best effected by the surgeon introducing one or two fingers of the right hand into the rectum while the finger of the left hand is in the bladder. The drainage of the bladder and after-treatment are the same as after suprapubic cystotomy for stone or tumor.

Perineal prostatectomy by Dittel's method does not appear to be encouraging. Nicoll has modified this operation by performing a preliminary suprapubic cystotomy, for the purpose of introducing the finger into the bladder to push the prostatic tumor into the perineal wound, thus facilitating its removal. At the same time there is obviated the opening of the mucous membrane of the bladder or urethra.

A new method was employed by Freyer in 1899. He took advantage of Dittel's incision, but Nicoll's objects were attained by a much less serious proceeding than suprapubic cystotomy. The bladder was explored by a perineal urethrotomy, and it was decided to remove perineally the tumor which he discovered in the case reported. A crescentic incision about four inches long was made from the median raphe at the lower end of the urethral wound backward around the anus to the coccyx on the right side. The dissection was carried deep into the ischiorectal fossa, the rectum being drawn inward by a broad retractor. The left forefinger was passed through the urethral wound into the bladder and hooked round the tumor, which was pressed out into the wound and thus came well into view. The capsule of the prostate was incised and peeled off by means of an elevator. The tumor, which involved the whole of the right lobe of the prostate, was thus removed piecemeal by cutting forceps and curved scissors, only a thin layer being left to support the mucous membrane of the bladder and prostatic urethra, which was left intact. A perineal tube was inserted, the wound was packed with iodoform gauze, and during the six days in which the tube was kept in the whole of the urine passed through it, not a drop escaping beside the tube, thus obviating any chance of infection of the deep ischiorectal wound till it had partly filled up and was covered by healthy granulations. The patient left the surgical home untroubled by any urinary symptom, and is now quite well. This method, with its advantages, is inferior to McGill's operation for cases of enlarged middle lobe projecting into the cavity of the bladder. In very fat patients, too, or when the prostatic tumor is very large, it may not be feasible, because the finger may not be long enough to hook it around the growth.

One of the most remarkable effects of castration is the decided improvement in the symptoms that sets in in many cases a few hours after the operation, particularly in the diminution of pain and in the spontaneous

passage of urine when all expulsive power had been previously lost. The most serious drawback is the high mortality—at least twenty per cent—owing to the advanced age and, in many cases, the broken constitutions of the patients. Mental disturbances, sometimes amounting to mania, occasionally follow the operation. When the period is reached when a man will consent to the removal of his testes, the castration is in itself an operation attended by a heavy mortality.

Vasectomy consists in division or excision of a portion of the vas deferens. General anesthesia is advisable, but the operation may be performed by local injections of cocaine. After the parts have been shaved and rendered aseptic, the vas is searched for in the upper part of the scrotum. It is grasped between the finger and thumb of the left hand and brought as close to the surface as possible. An incision an inch long is made directly over and along the course of the cord, and the dissection is carried down to the vas, which is recognized by its white, glistening appearance. It is grasped by toothed catch-forceps, a blunt hook is passed beneath it, and a loop is withdrawn through the wound after separating it from the enveloping fascia. A ligature may be tied around the loop, which is cut off, or separate ligatures may be applied an inch or more apart, and the intervening portion may be cut away. The skin wound is closed by one or two sutures. The vas on the other side is dealt with either at once or after an interval of a few days. This latter course is safer and less liable to be followed by mental disturbance. Freyer has performed this operation in a considerable number of cases without mortality. He says that he cannot imagine death resulting from such a comparatively simple operation alone.

Vasectomy effectually prevents the recurrent epididymitis and orchitis which are such painful and distressing complications in prostatic patients. It is neither so rapid in its results nor so radical a cure as castration.

When in the advanced stage of prostatic enlargement the capacity of the bladder is much diminished in size, all expulsive power is lost, and severe cystitis exists, it may be necessary to draw off the urine by the catheter every hour, or even more frequently. Under such circumstances the bladder must be drained, temporarily or permanently as the case may require, through an opening made either in the perineum or above the pubes, thus obviating the introduction of the catheter and giving the bladder complete rest.

To effect drainage of the bladder above the pubes the operation is the same as suprapubic cystotomy for stone.

The perineal is a much less serious operation than the suprapubic. When, therefore, drainage alone is required, and this is to be of a temporary character, and particularly if the patient be very feeble, the former operation should be selected. By suprapubic cystotomy the bladder at the same time that it is drained can be throughly explored and a stone or prostatic growth can be removed. Thick, dense flakes of muco-pus and phosphatic grit which may adhere to the walls of the bladder can be scraped off by the fingernail or scoop and removed by irrigation.

Reviews.

REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES ARMY FOR THE FISCAL YEAR ENDING JUNE 30, 1900. Washington, 1900.

This report, interesting to every medical man, begins with a financial statement which adequately accounts for the $1,500,000 expended during the year. It is interesting to note that 544 specimens were added to the Army Medical Museum, and that over 7000 medical books, theses, and pamphlets were added to the library. In the bacteriological laboratory of the United States General Hospital, 5574 examinations were made, and the description of this work is extremely interesting. In the section devoted to the health of the army, it is gratifying to note the extremely small proportion of disabilities and discharges due to venereal disease. The section treating of the Division of the Philippines will probably be read with special interest; it is made up mainly of reports from officers in the field. A similar series of reports is published from the surgeons serving in Cuba.

In considering the prevalence of special diseases it is noted that the mortality of typhoid fever was about 11.81 per cent as opposed to 10.48 per cent during the epidemic of 1898. The mortality rate was lowest among the troops serving in the United States, and highest in the garrisons of Cuba. It is noted that in 1899 there was a somewhat greater prevalence of typhoid fever among the regulars than among the volunteers; there was, however, a much smaller number of cases infected. This is attributed to the care

exercised in the water-supply, removal of excreta, and thorough cleanliness of the camps and their surroundings.

During the year 1899 there occurred among the troops 262 cases of yellow fever, with 55 deaths. It is noted that 204 cases of cerebro-spinal meningitis are recorded, with 120 deaths.

There is an extremely interesting and instructive report upon malarial fever and dysentery.

Venereal disease seems to be more than usually prevalent. Gonorrhea claimed the greatest number of victims, chancre followed next, and syphilis took third place. Nor is it particularly comforting to find that the number of these cases compares favorably with that for the British army at home or abroad.

Major Ives, noting the increasing prevalence of disease among the troops of Matanzas and Santa Clara, instituted measures for its repression. He subjected all enlisted men to weekly examination, and treated those who showed signs of disease, depriving them while under treatment of canteen privileges and passage from the garrison. The system, opposed at first by the officers, is said to have given excellent results.

There is also noticed an increased rate of alcoholism. This is due to the rapidity with which the army was recruited.

In the tabulation of injuries it is noted that gunshot wounds stand third in the list, contusions and sprains taking first place. There were ninety-nine deaths from drowning reported in 1899; seventy-eight of these occurred in the Philippines. There is a most instructive tabulation of gunshot wounds, and a suggestive one concerning suicides and homicides. It is, perhaps, not unnatural that with the increased proportion of venereal diseases and alcoholism the percentage of homicides should have nearly doubled in 1899.

Dr. John McG. Woodbury has submitted a report on the medical conditions in the German army as seen by him during the field maneuvers of 1899. A point of great practical importance impressed in this report is the care devoted by the German Medical Corps to the feet of the army. Each man's feet are inspected by one of his company officers and a medical officer and an assistant at least twice a week in barracks, and oftener in active field maneuvers. The companies are formed in squads standing upon tables or benches sufficiently high to bring the feet directly under the eye of the inspecting officer, and to bring to his observation any wincing or flinching when the inspected man jumps to the ground barefooted. The inspecting officer passes down the line, carefully examining the front of the feet and legs, which are bare to the knees. He searches for sprained tendons, blisters, improperly cut nails, or untrimmed corns. The men are about-faced, and the tendo Achilles carefully examined. As they raise one foot and then the other, the soles are carefully inspected. When each man has been thus examined, he leaps to the ground and runs to his shoes and stockings; this is to show any bruised soles or inflammation of the ankle bones. In case blisters or improperly cut nails or tenosynovitis are found, they are at once cared for by an assistant. At the same time each man's socks and boots are carefully inspected as to the condition of cleanliness. Every thirty days the entire body of each man is inspected.

The report closes with a series of statistical tables.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Specially Prepared Articles. Edited by H. W. Cattell, A.M., M.D. Volume IV, Tenth Series.
Philadelphia: The J. B. Lippincott Company, 1901.

This, the fourteenth, volume of the Tenth Series of International Clinics opens with an article upon the United States Pharmacopœia by Professor H. C. Wood, and with articles upon Heart Disease, Raynaud's Disease, and the Relationship of Mosquitoes to Malaria. Following these articles there is a symposium on Genito-Urinary Diseases; a series of articles on Medicine; one on Neurology; one on Surgery; an exhaustive article on Blastomycetes or Ferments in the Etiology of Cancer; a description of Laboratory Methods by Dr. Geddings; and finally a monograph entitled "The Etiology and Morbid Anatomy of Various Diseases," by Henry W. Cattell, the editor. The volume is carefully edited, well printed, and easily read, and maintains the reputation of its predecessors.

A TEXT-BOOK OF PRACTICAL OBSTETRICS. By E. H. Grandin, with the Collaboration of G. W. Jarman, M.D. Third Edition, Revised and Enlarged. Illustrated.
Philadelphia: The F. A. Davis Company, 1901.

The fact that this book on obstetrics has passed to its third edition in the space of five years indicates that it contained much which interested the profession. A good many of the illustrations which are found in

it are taken from life by photography, and some obstetrical operations are also reproduced in this manner. Others are photographs which are taken from obstetrical operations performed on the mannikin. These illustrations are much better than those which are diagrammatic in character, many of which are very crude. The book can hardly be considered as a text-book for the general student, but more as an aid to careful obstetrical study and diagnosis. In other words, it is a book which the practitioner will peruse with much benefit, and not exactly the book which one would recommend to the undergraduate student, as it is not sufficiently elementary, and is not arranged for early study in this branch of medicine. Its teachings are, however, safe and reliable, and from these points of view it can be most cordially commended.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume VIII.
Baltimore: The Johns Hopkins Press, 1901.

The present issue of these Reports is a most interesting one to the practitioner of medicine. It contains seventeen papers, all of which deal with typhoid fever and its complications and sequelæ. The opening article is by Dr. Finney upon the Surgical Treatment of Perforated Typhoid Ulcer, and is followed by one upon laparotomy for the same condition by Harvey W. Cushing, M.D., by another by Dr. Flexner upon Unusual Forms of Infection with Typhoid Bacillus, and by others upon puerperal infection with this bacillus; gall-bladder infection; liver infections; the disinfection of infected typhoid urines; infection of the urinary bladder; and observations on the blood in typhoid fever—all which are based upon the personal examination of cases of this character and upon a study of the literature concerning the subjects discussed. The report is another monument to the industry of the Johns Hopkins Hospital workers.

A RETROSPECT OF MEDICINE. Edited by James Braithwaite, M.D., and E. F. Trevelyan, M.D. Revised, December, 1901.
Simpkin, Marshall, Hamilton, Kent & Company, 1901.

This is a continuation of the well known Retrospect which is familiar to so many readers through many years' publication. It is as ably edited and contains as much useful information as it always has contained, and there is no sign of its losing its vigor with its increasing years.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

A very important discussion was recently introduced by Dr. Louis Parkes at the Epidemiological Society of London on the prevention of water-borne enteric fever amongst armies. The question is naturally one that at the moment excites universal interest on account of the terrible mortality from this disease among the troops in South Africa. Regarded, however, from the purely statistical point of view, the incidence and the mortality has not reached the degree that has occurred in other large armies in the field in recent years. It is instructive to note that while at home we are accustomed to look on water as the cause *par excellence* of enteric fever in the field, there was much less ready acceptance of this view by the numerous medical officers at the meeting who had accompanied the army in South Africa. There was as a matter of fact but little enteric fever among armies on the march, when water would be taken haphazard from all sources, and when purification was next to impossible. On the other hand, it was the constant scourge of standing camps, where water could be most readily dealt with. Infected latrines are probably the chief source of trouble, and from these the disease is disseminated by dust and flies and other agencies, of which water was one of the less important. However, there can be no doubt that whatever share water may take in its propagation, it would be disastrous to allow any chance of contamination of the water-supply.

Surgeon-Major Macpherson gave his experience of various chemical methods of purifying water. He had tried the German bromine method in the Soudan expedition, but it had been found wanting, as the impatience of the thirsty soldier would not tolerate the considerable time necessary for the successive stages. Similarly the hypochlorite method had been abandoned because the amount necessary to sterilize the water seriously impaired its taste, and there was the added difficulty that the salt was difficult to carry in the solid state. The French method of Lepeyrine, which consisted in carrying in a case fixed in the water-bottle a powder containing permanganate of potash.

carbonate of sodium, carbonated lime, and alum, had also been abandoned for the sufficient reason that the permanganate did not destroy the bacillus typhi. The Belgian method of Professor Bergé was far too complicated for the use of troops in the field: it consisted in evolving peroxide of chlorine by adding one or two drops of sulphuric acid to some crystals of chlorate of potash in a flask, and by means of two tubes passed through the cork, one connected with the water and the other with a force pump, driving the gas through the infected water. In the present South African campaign there had been in use a single candle pump filter manufactured by the Berkefeld Filter Company, and it seemed to have answered its purpose well, in spite of the liability of the filter to become choked, which needed some little precaution.

Duckworth and Garrod contributed an instructive paper to the last meeting of the Royal Medical and Chirurgical Society on a case in which intestinal sand was passed, with a survey of the main features of several other cases. In the clinical history of this case there was little of special note, as the case in the main reproduced the symptoms that have been present in the recorded cases. Pain, however, was much less and never amounted to true colic. There was the usual history of gout in the family, and the patient was a woman of thirty-three years, the average being about thirty-five. Mucous colitis was present.

When washed and dried in the air, the sand was of a deep-brown ground color, with an admixture of pale or almost colorless particles. The particles were of various shapes, but there was no evidence of crystalline form—some were opaque, some translucent. Their longest measurements varied between 0.05 and 0.2 mm. No cellular elements were to be seen, and it was clear that the deposit was not a granular débris. It was thronged with micrococci and bacilli. Over sixty per cent of its bulk consisted of inorganic material, and calcium phosphate was the chief mineral constituent, while traces of magnesium were present. Examination of the pigment of the sand suggested that urobilin was the chief coloring matter. The case was evidently one of the passage of true intestinal sand, quite distinct from the false sand, which is composed of remains of vegetable foods which have resisted the action of the digestive fluids, and may have become incrusted with earthy salts. Such a sand is that associated with the passage of hard particles in the flesh of the pear, hence known as "pear sand;" the cellular structure of such particles can be readily recognized by the microscope. A similar black sand is derived from bananas.

The authors discussed the seat of formation of *true* intestinal sand, which is clearly of animal origin. It cannot originate in bile, as cholesterine is absent and bile pigment present only in traces. Presumably it originates in the intestinal canal; this is suggested by the association of mucous colitis, by the character of the organic material, and the abundance of bacteria. The abundance of urobilin and the scantiness of unaltered bile pigments suggest that it is formed at a site where the transformation of bile pigment into urobilin is far advanced; such a site is the upper part of the colon. The prominence of calcium salts is consistent with the fact that the excretion of calcium is believed to be effected largely by the intestine. The richness of milk in lime salts would suggest the avoidance of a largely milk diet in such a case as this.

The discussion at the British Balneological and Climatological Society on anemia and its therapeutics was of interest not because of anything that it contributed to our knowledge of the disorder, but by laying bare the depths of our ignorance. We can no longer rely even on the evidence supplied by examination of a drop of blood, inasmuch as there is evidence to show that it cannot be regarded as a sample of the whole blood. Moreover, Haldane and Lorrain Smith's researches on the bulk of the blood had tended to show that in chlorosis we have to deal rather with an increase of the plasma than a diminution of the hemoglobin. The difficulty in accepting this conclusion lies in the fact that if the plasma is increased, hemoglobin and hemocytes should be equally and simultaneously diminished, which is not the fact, for the essence of chlorosis, as we believe rightly or wrongly, consists in the diminution of hemoglobin not necessarily with any diminution of the number of hemocytes. An increase of plasma might offer some explanation of the prevalence of chlorosis at and about puberty, and its apparently exclusive incidence on the female sex. We know that the specific gravity of the blood is diminished at puberty, presumably also from an increase in the absolute bulk of plasma, and it may

be that this is an effort of nature to lay up a reserve storage of nutriment for the purpose of gestation. Professor Allbutt pointed to the dilatation of the heart and the voluminous pulse as significant of increased blood bulk in chlorosis. Accepting this hypothesis, one is further than ever from an understanding as to the means by which iron cures chlorosis. It would, however, suggest the removal of the chlorotic to high altitudes, at which Oliver has shown that the plasma undergoes a degree of concentration sufficient to suggest that the hemocytes have undergone an increase in numbers. Oliver, however, assigns this concentration to the dryness of the air rather than to the elevation. The evidence produced by other speakers in this discussion served to confirm Professor Allbutt's view that damp localities and low altitudes were unfavorable to the cure of chlorosis, and favorable to its development.

Herringham communicated to the Pathological Society of London his observations on the condition of the renal arterioles in chronic Bright's disease. With regard to the adventitia he found that it varies not with the condition of the other arterial coats, but with that of the general interstitial tissue of the cortex; he considers that the adventitia should be regarded rather as a part of the connective tissue of the kidney than as a coat of the vessel. With regard to the middle coat he employs the method of measuring the cut transverse section and comparing it to the measurement of the lumen and of the other coats; but he avoids the obvious fallacies of this method by also examining longitudinal sections of the muscle coat in which the nuclei of the muscular coat could be counted. Comparing thus sections from six healthy kidneys and from thirty-four cases of various forms of Bright's disease, there was not a single instance in the latter of true hypertrophy or hyperplasia of the muscle coat; on the other hand, there was evidence in the direction of thinning of this coat and diminution in its nuclei. This is the case not only in advanced disease, but also in the very earliest stages. Fibrosis of the media, however, is not uncommon; changes in the intima are very common. The increase of elastic tissue in the larger arterioles is not generally known, although it is easy to decipher the concentric rings of elastic tissue; in this layer the earliest change seems to be a swelling of the elastic tissue with subsequent splitting into layers between which cells derived from the original membrane lie. Hyaline endarteritis appears to be the form of endarteritis proper to the smaller arterioles; it always occurs along with the above named changes in the elastic layer in the large vessels. Probably the process is the same, varying however in its outward form according to the size of the vessel. Besides these changes in the intima, there is seen sometimes in the larger arterioles a cellular increase, probably formed from the endothelium, and internal to the above changes. The occurrence of Bright's disease in young people without arterial change shows that Bright's disease is at any rate not invariably caused by endarteritis; while the occurrence of endarteritis without affection of the renal tissue shows that the arterial disease is not the result of chronic inflammation of the surrounding renal tissue. Indeed, the two conditions seem to be quite independent, and endarteritis is very much a matter of age. Nor is there any relation between the amount of change in the arterioles and in the other tissues of the kidney. Bright's disease might predispose to arterial degeneration by its profound influence on general nutrition, but probably not by mechanical obstruction or chemical irritation of the vessels. Herringham rejects the theory that refers the increased pulse tension to obstruction of the peripheral vessels, and regards it as the effect of the disease in the large arteries, by which the function of these as elastic reservoirs is perforce transferred to arteries of smaller size.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Professor Robin has been advocating of late a new drug in the treatment of anorexia. This drug is the pure solution of persulphate of sodium, also called persodine. This would seem to be, according to Professor Robin, one of the best aperients known in ordinary forms of anorexia, as well as in consumption. The drug is given as follows:

Persulphate of sodium, 2 grammes (30 grains);
Water, 300 grammes (10 ounces).

A soupspoonful a half-hour before lunch and dinner.

After six days the appetite is awakened. If no result is obtained during this period it is useless to persevere, but after some rest persodine can be tried again.

Another drug recommended by Professor Robin is metavanadate of sodium, to be used

for the same purpose, and which produces sometimes better results than persodine.

Metavanadate of sodium, 0.03 centigramme (½ grain);
Water, 150 grammes (5 ounces).

Each teaspoonful contains a milligramme. A teaspoonful is given half an hour before lunch and dinner. The use of this drug should only be continued four days, and then a rest should be taken. This treatment cannot be recommended in cases of cancer of the stomache, but it has succeeded with tuberculous patients.

Professor Potain, who enjoyed a world-wide reputation as a heart and lung specialist, died suddenly during the night extending from the 4th to the 5th of January. The night before he had gone to sleep most quietly. He was one of the most perfect types of a good physician, kind-hearted and sincere, and placing his profession above all things. Potain was seventy-five years old when he died, and he had given half a century to the practice of medicine. He was made a member of the Academy of Sciences when Charcot died. The clinical instruction he gave referred more specially to heart affections, and the greater part of it is found in his "Clinical Lectures at the Charité," which were published by Dr. Vaquez, his former interne.

At a meeting of the Dermatological Society, which took place last month, a woman suffering from leprosy was shown to the members. Born and brought up at Nice, this woman had never left France and had never seen any people suffering from leprosy. Every year, however, she used to go up into the mountains to spend several months, and it seems that there are still a few places where leprosy exists, the disease, however, having a tendency to die out. In the middle ages there were about two thousand leproseries in France, which shows how many cases there must have been.

At a recent meeting of the Society of Therapeutics Dr. Legrand spoke on the treatment of smallpox. One frequent symptom is considerable gastric intolerance with frequent vomiting of bile. A good preparation in these cases is the following:

Hydrochlorate of cocaine, 10 centigrammes (2 grains);
Syrup of ether,
Syrup of codeine, āā 30 grammes (1 ounce);
Chloroform water,
Mint water, āā 60 grammes (2 ounces).
A dessertspoonful every hour.

As for the general treatment, the formula used was as follows:

Ammonium acetate, 3 grammes (45 grains);
Tincture of opium, 30 grammes (1 ounce);
Elixir of cinchona, 60 grammes (2 ounces);
Simple elixir, q. s., 200 grammes (7 ounces).
One soupspoonful every hour.

The nineteenth German Medical Congress will be held in Berlin from the 16th to the 19th of April, 1901, under the direction of Professor Senator. The therapeutics of the heart and vasomotor drugs will be discussed by Dr. Gottlieb, of Heidelberg, and Dr. Sahli, of Bern. Leyden, of Berlin, and Redlich, of Vienna, will discuss the various forms of inflammation of the medulla; the surgical treatment of hypertrophic cirrhosis of the liver will be the subject of an address by Dr. Hirschberg, of Frankfort-on-the-Main; and the condition of blood tension in the treatment of chronic affections of the heart will be discussed by Dr. Schott, of Bad Nauheim.

It is a fact which cannot be gainsaid that typhoid fever is sometimes contracted inside a hospital, and at a recent discussion held on this subject at the Medical Society of the Hospitals several cases were reported. Dr. Troisier said that it would be well to change the system in use at the Beaujon Hospital. Near his two wards there are three faucets, and two of them furnish Seine water. It would not be a matter for surprise if the patients and even the nurses made the mistake of using the wrong faucet. One of his patients was having her stomach washed out, and thirty-six days after her entrance into the hospital she began suffering from typhoid fever. Dr. Ballet, the well known neurologist, physician at the St. Anthony Hospital, spoke of a similar case where the water used for bathing the patients infected a patient and a nurse at the same time. Professor Letulle, physician at the Boucicaut Hospital, described how in three years seven cases of typhoid fever had taken place, and amongst these five had not been near any typhoid fever patient. Dr. Vincent remarked that the nurses might have been infected by touching soiled objects and then not washing their hands before eating.

Dr. Martinet, former interne of the Paris hospitals, has published recently an article in the *Presse Médicale* on the best methods of giving digitalis. When first used in 1775 by Withering and others, the infusion, or the powdered leaves in pills, were the only prep-

arations known. Various tinctures were discovered later on, but it was only in 1845 that Hourolle, using the methods employed by Pelletier and Caventon, isolated a product which is known at present under the name of amorphous chloroformic digitaline of the Codex. Somewhat later Nativelle isolated a crystalline alkaloid, which proved to be much more active than the first product. Schmiedeberg in Germany has isolated various products; one of them is called digitoxin, and would seem to be the active principle. However, at the Thirteenth International Medical Congress Dr. Lauder Brunton indicated in his report that he considered that their action was identical though not of equal intensity. Crystalline digitalin is always the same in its action; it is therefore preferable to use this preparation rather than digitoxin. *Digitalis purpurea* is a plant which grows in many countries, and the quantity of active principle contained in the leaves of the plant varies so much according to the land it is grown in that doses of an infusion of twelve to fifteen grammes are given in Scotland or Roumania, whereas in London the dose is reduced to three or four grammes, and sinks in France to one gramme. One can readily understand how difficult it is to establish any fixed dose, as such a course might lead to grave accidents as well as to unsuccessful trials. It has been calculated that one milligramme of crystallized digitalin of Nativelle is equal to fifty drops of the glycerin and alcohol solution of Petit, and to two and a half grammes, or 128 drops, of the alcoholic tincture commonly used, or to 0.40 centigramme of the powder made with the fresh leaves of the plant. It should be remembered, however, that there are other products besides digitalin in the leaf, and this argument has been employed to combat the use of the alkaloid. Digitalin is generally prescribed in France by means of the following formula (Petit):

> Chloroformic crystallized digitalin, 1 gramme (15 grains);
> Glycerin (specific gravity 1250), 300 Cc. (10 ounces);
> Distilled water, 150 Cc. (5 ounces);
> Alcohol (95-per-cent), q. s. ad 1000 Cc. (1 quart).

This preparation can be given in water or milk, and fifty drops was the usual dose given by Dr. Potain, the celebrated heart specialist, who died recently, though some physicians, like Professor Fernet, administer fifteen drops three days in succession. Next to this preparation the best means of giving digitalis is to use the maceration, which however contains no digitalin, as this alkaloid is insoluble in water. Digitalin and the salts of potassium are undoubtedly the active principles. When giving digitalis Professor Huchard's aphorism should be borne in mind—"neither too much nor too little, neither too often nor too long." A fault often made is to give digitalis in small doses for a lengthened period. Rest in bed, purgatives, and even bleeding and cupping, are indicated. Children should not be given digitalin, but the infusion (one centigramme for each year), or better still the tincture, may be employed. Three drops may be given to a child one year old, 9 at six years, 15 at five years, 18 at eight years, and 20 at the age of ten years.

Dr. Lermoyez, who is one of the best known specialists in ear troubles, has written recently an essay on the care of the organs of audition, in which he shows how important it is to watch the hearing from earliest childhood. There is a French saying that one is usually deaf without knowing it, and there is a good deal of truth in this, as one's sharpness of hearing may diminish imperceptibly. When no sign has drawn attention to the fact that the ear is affected, the change is only noticed when it is already too late. The perception of sound does not exist at birth, though sight, touch, taste, and olfaction are already developed.

The hearing should be examined at the age of six months, and if the child seems to be indifferent to the sounds that are produced around him, the attention of an aurist should be called immediately to the fact. Deafness at this age is rarely due to a congenital defect, but more often to an acute otitis which has been overlooked. Toward the age of two years, if the child does not seem to begin to talk, one should consider the possibility of a defect in his hearing. A good way of telling whether the child is deaf is to put out the lights and then talk to him. Von Tröltsch, the great German aurist, has said that the intelligence of a child depends in a great measure on his hearing, and so during childhood this question is of great interest; many boys and girls who are thought to be backward in their studies are simply suffering from adenoid vegetations or some such trouble. It seems that out of one hundred schoolchildren twenty suffer from this affection, and that twenty-five per cent cannot write from dictation at a distance above six meters. The greater part suffer from adenoid vegeta-

tions, but some from cerumen or else chronic otorrhea. Moure has rightly remarked that two-thirds of these cases can be cured, whereas later it is difficult or impossible. When therefore the child is about seven years old, he should be examined as to the distance at which he hears distinctly, and given a place in the schoolroom in accordance with the result of this examination. Later on in life, when the choice of a career is to be made, it is of importance to remember that some professions or occupations require greater acuity of hearing, such as that of a physician. In case there is a perforation of the drum of the ear, it is best to avoid a seafaring life. If there is hardness of hearing it is best to keep away from large cities, where the noise is apt to be productive of a modification in the quality of one's hearing. In some professions, such as that of engineer, the work itself is apt to cause a modification of the hearing, and some are no longer able to perceive the different sounds, such as whistles or bells, which are the means of signaling from one train to another.

At one of the last meetings of the Society of Biology Drs. Gilbert and Fournier read an essay on the use of lecithin as a therapeutical agent. This body has already been studied by such authors as Danilewsky, Selensky, Serondo, and others. Its special action consists in favoring the assimilation of nitrogen and phosphorus. Such is the conclusion reached in their work on the subject by Desgrez and Zaky. The variety of lecithin used by Dr. Gilbert was that which was extracted from the yolk of eggs. This substance was administered either in one large dose of from two to five grammes, or else in small doses of ten to twenty centigrammes, each day.

THE TREATMENT OF TRACHOMA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: There are always two things to consider in the treatment of trachoma: first, how to accomplish the removal of inflammatory complications and the attendant hypersecretion; secondly, what means to adopt to further the disappearance of conjunctival hypertrophy.

I have had quite an extensive experience in the treatment of this disease, always using the well known remedial agents such as silver nitrate, but with only fair results. About six months ago I began to employ mercurol, at first in a two-per-cent solution. I soon observed that better results were obtained as I increased the strength of the applications, until finally I found myself using the dry powder itself.

In all cases in which I use dry mercurol the purulent secretion quickly ceases to appear, the conjunctivæ become smooth, the hypertrophy diminishes, and the pannus clears up in a short time. I obtain the best results by applying the powder directly to the everted lids, once a day until the inflammatory symptoms begin to subside, then each alternate day for a few times, and afterward once a week, until the disease is cured. In making the applications I use a small probe wrapped with cotton, or a small camel's-hair brush, taking care to cover the entire palpebral conjunctiva. The mucous membrane first becomes yellow, then red, when the mercurol is at once washed off with normal salt solution or a solution of boracic acid.

Although I have made use of this mode of treatment in a number of cases, I will report but two of them. The first, a laboring man, thirty-six years of age, came to me in the spring of 1900 with an acute trachoma, and I treated him for about six weeks with silver nitrate, etc. He improved to the extent of becoming able to return to his employment upon a railway, and I lost sight of him until November, when he returned with a chronic trachoma with pannus. The vision in each eye was 10–200. Although treatment with silver nitrate was at once instituted and continued for eight weeks, there was very little improvement and the vision remained as it had been. At this point I began to use powdered mercurol, with the result that the discharge lessened, the pannus began to clear up, the conjunctiva became smooth, and at the end of three weeks the patient could read 10–10 with both eyes. The symptoms had entirely disappeared at the expiration of six weeks.

My second case was that of a merchant, twenty-eight years of age. In December he came to consult me concerning an attack of acute trachoma. I began treatment at once with powdered mercurol, and in ten days the symptoms had entirely disappeared.

I may add that I have as good if not better results than formerly, in acute conjunctivitis, from the use of the dry mercurol, and with the advantage of causing but slight pain.

Yours truly,

R. D. SLEIGHT, M.D.

MAPLE RAPIDS, MICHIGAN.

—THE—

Therapeutic Gazette.

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HEMORRHAGIC MALARIAL FEVER: ITS TREATMENT.

BY W. E. SPARKMAN, M.D.,
Georgetown, S. C.

Malarial hemoglobinuria, or "hemorrhagic fever" as it is called, is the result of profound malarial intoxication, occurring in neglected or frequently recurring cases of intermittent fever, just as we find the other varieties of pernicious fever (such as "congestive chill") following repeated attacks of ordinary malarial fever. It does not occur in the primary attacks of malarial fever, and I have never seen it in the remittent form of the fever, although I have seen remittent fever follow hemorrhagic fever.

In discussing the treatment of this condition it will be necessary to animadvert to or note some of the complications which accompany and follow it, and render it more grave than it would otherwise be.

Hematogenous jaundice, more or less intense, is a usual concomitant, and generally very distressing. Nausea is present in all cases. Suppression of urine, partial or complete, is one of the most dreaded complications, and when complete for any length of time is usually fatal. The suppression in m-

judgment is often due to the formation of clot in the uriniferous tubules, and when total obstruction occurs, uremic conditions quickly follow.

Hiccough is another very distressing condition which follows, and is often very hard to control, producing rapid exhaustion if prolonged. There is also a nervous jactitation peculiar to the disease, with which we find an utter inability to sleep, headache, and pains in the back and limbs.

Heart failure is apt to occur when we least expect it, and often when our patients are apparently doing well.

No hard and fast rules can be laid down for the treatment of these cases, and each must be treated on its own merits, as conditions confront us.

There is nothing to warn us of the approach of hemorrhage, and its occurrence is usually preceded by a chill, more or less marked, and each succeeding hemorrhage usually follows the chill stage. Aromatic sulphuric acid, in mild cases, acts well; but in those more severe I use the following prescription:

℞ Tinct. digitalis,
Tinct. ferri chlor., āā f ʒ vj;
Ammon. chloridi, ʒ iij;
Aquæ dest., q. s. ad f ℥ iv.

M. S.: One teaspoonful in water every three hours.

Ergot I never use, because I believe it favors clot and suppression of urine.

To keep the bowels open, and for its action on the hepatic secretion, I use sodium hyposulphite in drachm doses in cinnamon water every three hours until I am satisfied that the jaundice is clearing, and the urine becomes normal. For nausea and vomiting I apply mustard plasters to the epigastrium, a little brandy on crushed ice, or bismuth subnitrate, cerium oxalate, and carbolic acid in mucilage of acacia; but should there be much nervous jactitation with sleeplessness attending it, I use potassium bromide, spiritus etheris nitrosi, and chloral hydrate in simple elixir, adding, if fever be high, acetanilid, governing quantity and interval by the effect. As to suppression of urine, acetate of potassium with infusion of digitalis seems to be the best diuretic, and conjointly I use high rectal injections of salt and water, encouraging the patient to retain the water as long as possible.

This failing, and the patient being very much exsanguinated, the salt solution may be given hypodermically to advantage, selecting the gluteal or lumbar regions for injection.

When hiccough comes on Hoffmann's anodyne in drachm doses sometimes affords prompt relief, and at the same time supports the heart; but I also resort, when necessary, to spirits of turpentine, oil of amber, and many household remedies—one sufficing for one patient, while another acts better with some other, and in some cases all failing to do any good. Calomel I never use in these cases, although some claim that twenty-grain doses repeated once or twice in twenty-four hours is curative. Quinine I never use until my patient has passed twenty to thirty hours without any sign of hemorrhage, and then I employ full doses every four hours of the bimuriate with urea hypodermically. Should hemorrhage return I withdraw the quinine at once, but return to it as soon as I can safely do so.

Stimulants I allow freely where the stomach will bear it, using good whiskey, brandy, champagne, or good wine, and sponge constantly with alcohol and water to reduce temperature. To guard against heart failure I give strychnine nitrate $\frac{1}{40}$ to $\frac{1}{30}$ grain every four to six hours.

The diet must depend upon the gravity of the case, and the ability of the digestive organs to take care of the food. Egg-nog, egg-albumen and milk (milk slip), corn gruel, all come in for their share of usefulness. I have also allowed very ripe, raw tomatoes, sliced and salted, and have never seen any but good results from their use. Lemonade serves to quench thirst and promotes the action of the kidneys, but I think is very inferior to the ripe tomato.

When my patient is fairly convalescent I give a pill three times a day containing:

℞ Quininæ sulphatis, gr. ij;
Ferri sulphatis, gr. ij;
Strych. sulphatis, gr. 1-40;
Extract gentianæ, gr. 1-4.

This is an admirable reconstructive, as well as a preventive against future attacks.

Now as to prophylaxis. To guard against hemorrhagic fever those who are obliged to live in malarial sections must never fail to take prompt treatment when the slightest attack occurs, and should adopt all hygienic measures necessary to prevent a return.

Among other necessary precautions the patient should be careful about drinking impure water, and resort to some of the mineral waters now to be had.

The occurrence of more than one attack of hemorrhagic fever in the same person should promptly urge him to seek a home beyond the reach of the poison, for each succeeding attack only renders one more liable to other attacks.

THE TREATMENT OF MALARIAL HEMATURIA.

By T. H. Watkins, M.D.,
Lake Charles, Louisiana.

My experience with malarial hematuria in private practice has been limited to nine cases, three of which died, six recovering entirely. Five were of a malignant type, three of which died; four being of an intermittent type, and were prevented from assuming a malignant type by prompt treatment. Four of the malignant cases were males, three of which died. Five of the cases were females, all of which recovered.

In my opinion the best preventive treatment is as follows:

Drinking boiled water, remaining indoors from sunset to sunrise, living in a house well elevated above ground. This opinion is based on my own experience as well as upon accepted theories, for one of my pernicious cases had been hunting almost every night for three weeks previous to his illness; another was a night-watchman at an ice factory located on a river and just opposite a swamp; and another was a night-watchman at a sawmill similarly situated.

In a pernicious malarial district, five grains of quinine should be taken before breakfast daily. I advise early taking because circulation and absorption are better at that time, and also because the effect of quinine on the nervous system is less disturbing when taken at the time referred to. Arsenic of course might be taken, but I have found that arsenic without quinine seems to have absolutely no antiperiodic effect.

As to treatment of hematuria, I favor the following:

Give calomel and bicarbonate of soda, each two grains every hour until bowels act freely. If satisfactory evacuations do not occur after eight or ten doses, give magnesia sulphate in hot water until desired effect is produced. The bowels are often very obstinate, and it is necessary to combine podophyllin and aloin with the mercurial. If the patient should be comatose, give calomel in large doses (60 grains if necessary) in fresh butter, placing same in mouth and depending upon warmth of the mouth to facilitate swallowing. In this condition, where absorption is doubtful, quinine bisulphate should be used hypodermically. I prefer the following:

> Quinine bisulphate, 2 drachms;
> Sulphuric acid, dil., q. s. (very little required when mixture is heated);
> Carbolic acid, 2 drops;
> Water, q. s. ad ½ ounce.
>
> M. Sig.: 20 drops hypodermically every two hours until patient is thoroughly cinchonized; then give every four hours.

The carbolic acid is used to prevent the formation of abscesses.

After the bowels have acted from calomel and magnesia, give hyposulphite of sodium 20 grains every two hours until a continued purgative effect has been obtained; same being used to lessen the congestion of the kidneys, and for its depleting effect on bowels, liver, etc.; also to increase the alkalinity of the blood, and for its diuretic effect.

I think I have had good results from spirits of turpentine and ergot for antihemorrhagic effect.

No coal-tar products should be given under any circumstances. If temperature is high I depend upon sponging with hot or cold water to reduce it. If patient shows a profound nervous disturbance and sleeplessness is present, I give morphine hypodermically and bromides by the mouth. For heart stimulants I resort to strychnine and nitroglycerin when indicated. As to the good and bad effects of quinine, I will give the history of two or three cases:

Mr. Robert P., aged forty-five, carpenter, had a chill followed by high temperature and bloody urine. Quinine was made the basis of treatment, following the brisk use of a mercurial purge. After the second day blood disappeared from the urine. I continued to give quinine freely for two or three days, when it was decided to reduce the dose to about fifteen grains in twenty-four hours. This was followed next day by a chill, a rise of temperature, and bloody urine. Quinine was immediately increased, and the urine became clear again in about forty-eight hours. Quinine was given freely for about five days, the patient having about one degree of fever daily, the urine remaining clear. At the end of this time quinine was again decreased. This procedure was again immediately followed by a chill, rise of temperature, bloody urine, and a pronounced convulsion. Quinine

was again increased, and the patient's temperature again became normal and blood disappeared from urine. Quinine was then continued, and complete convalescence was established in about two weeks.

Mrs. K., aged thirty-five, had a chill, with high temperature, followed by bloody urine which appeared to be almost pure blood. Treatment as outlined above was closely followed, quinine being given at the rate of about sixty grains every twenty-four hours hypodermically. Hemorrhage continued without interruption for about six days, after which it was gradually checked and did not return.

In another case, after passing blood for about six days, the urine became entirely clear two days previous to death, which was caused by exhaustion attendant upon high temperature, loss of blood, and profound malarial poisoning. The treatment was the same as in the case of Mrs. K.

I am an advocate of the vigorous and persistent use of quinine in these cases. I accept the theory that the invasion of the malarial germ breaks up the integrity of the kidneys and is the sole cause of this fatal disease. Without the use of quinine we are robbed of our most powerful and almost our only weapon in acute malaria of whatever type.

I find upon inquiry of old physicians that some of them do not give quinine until after the bowels have acted freely from large doses of mercurials; then they give it in enormous doses. We have in this section a large number of cases of the comatose variety of pernicious malaria.

THE TREATMENT OF MALARIAL HEMOGLOBINURIA.

By James M. Parrott, M.D.,
Kinston, N. C.

Several years ago I began a systematic investigation of this very interesting affection, carried on as scientifically as possible for one of my means and opportunities. I soon realized that the many seemingly contradictory reports were not really contradictions, that there are varieties of malarial hemoglobinuria, and that each variety must be treated differently.

I have divided the subject into two varieties, which from their pathology I have denominated asthenic and sthenic. A distinction can be made clinically and must be made therapeutically. The intermittent form to which several writers have referred I have seen but once. Those attacks with genuine malarial hemoglobinuria can be classed with the sthenic cases. Several months ago I prepared an article for the *Carolina Medical Journal* along this line, and take the liberty to quote from this article my description of these varieties:

"The sthenic cases are seen in the more or less robust, though the more characteristic manifestations are preceded, as are the asthenic, by symptoms which are generally supposed to be those of ordinary malaria. In the former variety these prodromes are more acute, in that they exist but a few hours, or at most a few days, with distinct intermission.

"The asthenic variety is met with in those who have a previous malarial cachexia. It occurs in those who are debilitated and weakened, and whose excretory organs are inactive because of certain organic pathological changes universally recognized as those of chronic malaria.

"The course of the sthenic variety is rapid, while that of the asthenic is slow. In the former the pulse is full and bounding; in the latter, from the very beginning, it is weak and thready, very much like the pulse in peritonitis. In a few hours after the second or third chill of the sthenic variety, the patient passes the first pathognomonic dark brownish-red urine, and then the yellow coloring of the conjunctiva and skin begins.

"In the asthenic variety the patient may, and generally does, experience several days of continuous fever before the characteristic urine is passed and the conjunctival and integumental discoloration begins. The shade of the color differs also from that of the sthenic cases; it is more of a dead yellow, somewhat like a faded color. In these cases the discoloration is of an increasing tendency, gradually becoming deeper. In the sthenic variety it develops more suddenly and reaches the height of its intensity in a remarkably short time.

"In the sthenic variety the temperature usually rises very suddenly and drops often to or below normal, after the hemoglobinuria begins in earnest. This may be repeated at regular intervals. In the asthenic variety the temperature rises slowly, seldom going above 103°; then it falls a little, holding after that a more or less continuous course. In reference to temperature, one might be denominated intermittent (more or less) and the other remittent. If this classification

was adhered to, however, it might lead to confusion, since the temperature of each variety might intermit or remit; and so far as the treatment is concerned such a division would be of but little assistance. The urine is more quickly suppressed in the sthenic cases, while in the asthenic the anuria gradually develops. Cerebral symptoms are more striking and violent in the sthenic than the asthenic class.

"Asthenic diarrhea is more frequently seen, though in my experience it is rather rare in both varieties.

"In the asthenic variety the liver and the spleen are much more enlarged and firmer on abdominal palpation than in the sthenic, due doubtless to the previous malarial cachexia. Both are tender in both varieties, but especially is this true in the sthenic cases. The facial expression of the asthenic variety is more anxious and gives more striking evidences of depression than the sthenic variety.

"If an examination of the blood be made during the first seventy-two hours after the appearance of the hemoglobinuria (often it must be made earlier, particularly so in the asthenic variety) a form of the malarial parasite closely resembling the estivo-autumnal type will be found. In my opinion this organism is peculiar to malarial hemoglobinuria. It is without doubt a true malarial parasite. I believe it causes the two or three chills which usually precede the appearance of the hemoglobinuria, and that these chills are part of that attack. It can be found in the blood at any hour, and is sometimes present in very great numbers, especially in the splenic blood. In a patient who died of the disease I found two in one corpuscle in several instances before death. This victim succumbed on the third day of the attack. I have never found this parasite after the fourth day, and I believe that it disappears much earlier in the asthenic than in the sthenic variety. The recollection of this fact will be of much assistance in determining the treatment of the disease.

"The hemoglobin set free in the destruction of the red corpuscles in conjunction with the toxin of the organism no doubt kills the parasite eventually, the disease being then continued, as I believe it is, especially in the asthenic cases, by the action of the hemoglobin and other poisonous substances which cannot be excreted, because of the overworked and diseased condition of the excretory organs, notably the kidneys. This is the case with the liver, which fails to convert the excessive amount of hemoglobin into bilirubin.

"In asthenic cases with the liver and kidneys functionating very improperly and feebly, comparatively few parasites, destroying at first a small amount of hemoglobin, would give us malarial hemoglobinuria."

You will probably conclude from reading this quotation that I believe this condition is a distinct variety of malarial infection, and not an accident, or complication, or a sequela. I am still of that opinion. I wish I had the time to write in detail my idea along this line. However, all this is foreign to the subject, the treatment of malarial hemoglobinuria. Permit me again to quote from my article in the *Carolina Medical Journal:*

"The treatment of malarial hemoglobinuria is a subject which admits of much discussion, particularly in reference to the administration of quinine. This much should be said, that in the sthenic if seen early or before the beginning of the fourth day, or if when seen the parasites are present in the blood, quinine should be given. The alkaloid is not to be used in the asthenic cases except in very small doses, within the first few hours after the initial symptoms. In this class the parasite disappears very early, the probable cause of which has been discussed. After the organism leaves the system, theoretically quinine is useless, while experience has taught us that often it is then really harmful. When administered the drug should be given hypodermically. Much care should be used in deciding the quantity; five to twenty grains in twenty-four hours is the amount usually required."

You now see why I lay so much stress upon a distinction being made between the varieties. The microscope is often absolutely necessary in solving the question of the administration of quinine. If in doubt, and for any reason I cannot use my microscope, I administer the quinine.

"When the fever is high cold baths are not objectionable when used judiciously. Counter-irritation over the kidneys may do good sometimes. In all cases we must avoid depression. Calomel is used with much success when properly administered. Hypodermics of morphia and atropia in small amounts are very serviceable when nausea and vomiting are severe, as they usually are. If there be a sheet-anchor in the treatment of this disease, it is normal saline solutions properly used. In sthenic cases I sometimes bleed

tion. This is partly due to the fact that patients reduced by hemorrhage are especially susceptible to infection, and also to the fact that practitioners have been too prone to lose their judgment in treating placenta previa and to use methods which perhaps prevented the patient dying from hemorrhage, only to have her succumb to infection.

The induction of premature labor is probably the most important single step in the treatment of placenta previa. It guards the patient against the repeated losses of moderate amounts of blood with progressive anemia, and what is of even more importance, as the practitioner elects the time when labor is to be induced, he is enabled to secure adequate professional assistance. After the viability of the child this method cannot be objected to on the ground that it sacrifices the child's prospects for being born alive, as the fetal mortality has not been higher under this method of treatment than under the plan of non-interference. Prior to the seventh month of pregnancy the hemorrhages are seldom sufficiently grave to endanger the life of the mother. When moderate in amount and when the patient can be properly watched, it is permissible to allow the pregnancy to continue until the viability of the child. But when the hemorrhage is abundant or the patient so situated that she cannot have proper professional supervision, the interests of the mother require that pregnancy shall be terminated.

As Murphy's success in dealing with placenta previa has perhaps been greater than that of any other practitioner in a large series of cases, we cannot do better than to give his practice in his own words:

"The practice which I follow consists, not in a single method for stopping hemorrhage, but in several; and it is this: In the first place, in every one of my own patients, or in those that I am consulted about, when hemorrhage occurs after the seventh month, when it is clearly not from the cervix or os, and when there is presumptive evidence that it is from the placenta previa, I advise premature labor to be induced; or before that period of pregnancy when the hemorrhage is severe, continuous, or frequently recurring. In cases that permit of a little delay from the symptoms not being very urgent, I appoint a time when I can give a few hours' continuous attendance—two hours is generally sufficient—as once you commence to induce labor I consider it necessary to remain with the patient until delivery is accomplished; and when the case does not require instant action one can fix his own time and can have what assistance he requires.

"I find having an assistant a great advantage, and by thus arranging a definite time practitioners can secure the services of a specialist or fellow practitioner to help them and to share the responsibility. On examination, if the cervix will permit it, I introduce my finger, separate the placenta all around, and then put in a Barnes bag; and if not, I gently and slowly insinuate my finger through the os, which I have always found easy of accomplishment, never having had recourse to the preliminary introduction of a tent, though in inducing labor for other causes I have frequently had to introduce tupelo tents. Having thus dilated the cervix with my finger, I separate the placenta freely around the internal os, and at once introduce a Barnes bag. I slowly fill it with water—and here let me give a practical hint on the use of hydrostatic bags, which I do not remember to have seen mentioned in any of the text-books: When the bag is well through the cervix it is very difficult to say how full it is, and by continuing the injection it may very easily be burst, as once happened to myself, and has, I know, happened to many others; so, to avoid this, it is desirable to ascertain and remember how many syringefuls each bag requires before being fully dilated, and then carefully to inject only that number. Having thus filled the bag, I wait patiently until the os is well dilated around it, and, before introducing another one, separate the placenta further should the hemorrhage continue, which it does not provided the placenta has been sufficiently separated at first. After the bag has been introduced for some time the pains come on fairly well, though as a rule they are not very strong.

"I thus proceed until the os is fully dilated, when I give ergot freely, and decide what is the most suitable course to follow. If the placenta is lateral or marginal, and the pains fairly strong, I rupture the membranes and leave the case to nature; or, if the head is well into the pelvis, I may apply the forceps, but in the great majority of cases I perform version, preferably by the combined method, and deliver the child as quickly as is consistent with the safety of the mother."*

*Murphy, James: "The Treatment of Placenta Prævia," *Medical Press and Circular*, 1885, p. 208.

Murphy's experience with the use of the Barnes bag for the dilatation of the cervix has been more satisfactory than that of most practitioners, and at the present time many would prefer to substitute the manual dilatation of the cervix, the technique of which has been elaborated by Harris,* of Paterson, N. J. This consists of introducing the entire hand within the vagina, then introducing one finger through the os, then two fingers or a finger and thumb, as can best be accomplished. Then with the finger and thumb introduced, the finger is flexed against the thumb, which affords counter-pressure, and dilatation is begun. As the cervix dilates, first two, then three, and later four fingers, are introduced, constantly making use of the principle of using the thumb for counter-pressure while exerting force by the flexion of the fingers. In this way almost invariably the cervix can be dilated without using violence and without rupturing the cervix. When a fair amount of dilatation has been accomplished, the rules laid down by Murphy cannot be improved upon—that is, when the placenta is lateral or marginal the case may be left to nature or to nature assisted by the forceps, and in the more marked cases where the placental implantation is partial or central, resort shall be made at once to bipolar version. This is the sheet-anchor of safety in all cases in which hemorrhage is a marked feature, as in no other way can the hemorrhage be so promptly arrested as by bringing down a leg and using the buttocks of the child as a tampon to make pressure directly against the bleeding surface.

It is unnecessary to enlarge upon the conduct of those cases which can be left to nature or to nature assisted by the forceps, as the ordinary principles of good obstetric practice apply to these cases.

When bipolar version is employed, the recommendations of Hicks himself, which have been strongly emphasized by Lomer, should be strictly followed — that is, when bipolar version has been accomplished and the leg brought down until the pressure of the breech arrests the hemorrhage, the case shall be left to nature, or at the most only gentle assistance by occasional traction upon the leg shall be given. This is the more important when it has been necessary to employ version before securing dilatation of the os. If this practice is not followed, the head is arrested by the undilated cervix, causing delay in the delivery of the head and the sacrifice of the life of the child. The rapid delivery of the child is only permissible when the cervix is dilated or dilatable, and the life of the child is threatened, as indicated by increased rapidity of the fetal heart-beat. Under these circumstances rapid delivery in the interests of the child may be brought about. When this is done traction upon the trunk of the child should be supplemented by pressure upon the head from above by an assistant, in order to maintain flexion and to prevent the extension of the head and its arrest within the grasp of the cervix; in other words, the same principles which apply to the management of all breech presentations.

The use of chloroform or ether to facilitate the dilatation of the os and bipolar version is to be recommended.

The tampon, which was the treatment most relied upon formerly, has definitely lost favor, and should be employed only as a temporary means of arresting hemorrhage until assistance can be summoned and more efficient methods of treatment carried out. This estimate of the tampon is so universally held that it is unnecessary to say more about it. When employed the vagina should be packed full with either sterilized gauze or sterilized cotton wrung out of a solution of mercuric chloride 1:10,000. It is best introduced with the patient in the Sims position and the perineum retracted with the Sims speculum. The tampon should remain in place only long enough to prepare for more efficient treatment, or to secure professional assistance, and during this time, even when no external hemorrhage is taking place, it should not be relied upon, as the blood may be retained above it or within the cavity of the uterus. For this reason the condition and the pulse of the patient should be watched for symptoms of internal hemorrhage.

The Cæsarian section has been recommended and carried out in cases of placenta previa by Lawson Tait and others. It finds its best indication in cases of complete placenta previa in primiparæ in which there is ground to expect great difficulty in delivery owing to undilated or undilatable soft parts

In the past one of the greatest dangers of placenta previa has been that of infection Because of the greatly increased liability to infection on the part of a patient suffering from acute anemia, the most rigid asepsis is demanded in the management of cases of

*Harris, P. A.: "A Method of Performing Rapid Manual Dilatation of the Os Uteri, and its Advantages in the Treatment of Placenta Previa," *American Journal of Obstetrics*, 1894, vol. xxix, No. 1.

placenta previa. The induction of premature labor and the orderly conduct of the delivery, with proper assistance, afford the best opportunity to carry out a rigid aseptic technique. The vagina, external genitals, and the adjacent surface of the thighs should be scrubbed with soap and water and thoroughly douched with bichloride solution as a preliminary to the obstetrical manipulations. The hands of the obstetrician should be sterilized by prolonged scrubbing and by soaking them for at least three minutes in corrosive sublimate solution 1:1000. The use of rubber gloves sterilized by boiling is especially to be commended in the management of these cases.

GASTRIC ULCER: ITS ETIOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS, WITH SPECIAL REFERENCE TO TREATMENT.

By D. D. Stewart, M.D.,
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(*Concluded from page 234.*)

Treatment.—The writer will not attempt a description of the various plans of treatment in vogue, but will confine himself to that method which he has found the most successful, and which modified somewhat to suit particular cases can usually be easily applied by the general practitioner. When there are fair grounds to suspect the existence of gastric ulcer, there should be no delay in instituting treatment. The prime object is to give the stomach almost absolute rest for as long a time as the exigencies of the case will permit, in order to promote more or less complete cessation of its motor and secretory functions. By making little or no demands on that organ, and thus irritation by food, by muscular and glandular activity, being reduced to a minimum, and the bodily nutrition at the same time being maintained, impediments to cicatrization are removed. Cicatrization is also favored by neutralization of the gastric secretion with appropriate antacids, and by the employment of remedies exerting a soothing action on the ulcerated surface and upon the hypersensitive mucous membrane.

The writer rarely treats a case of chronic ulcer, unless a marked tendency to hemorrhage exists, without the stomach-tube, by which he employs remedies impracticable of use otherwise. Although he thus obtains results which he is confident would be of less prompt appearance, he cannot advise the general employment of the tube by those unskilled in its manipulation and in its contraindications in gastric ulcer.

At the outset the patient, or attendant, is made acquainted with the nature of the ailment and cautiously advised of its direct and remote dangers. The advantages of the mode of treatment to be suggested are then explained. Thus cooperation is usually easily obtained. The patient is required to remain in bed for a period varying from ten days to five weeks, depending upon the duration of bowel feeding, after which she may rest upon a lounge for part of the day, and later, as at the end of three weeks, be allowed to move about the bedroom, as improvement in the general condition continues. A competent attendant, preferably a skilled nurse, should be at hand in order that the feeding be intelligently carried out. All cases improve more rapidly and permanently if so treated, however mild they appear or however robust or anemic the patient may be. Now, for a period varying from a week to two or three, depending upon circumstances, the patient is to be fed solely by the bowel. Ten to fourteen days is the average time that bowel feeding is continued. All food, even of the simplest sort, including milk, is to be prohibited by the mouth during this time. At first drink even is also to be withheld save that amount of fluid necessary in which to administer the remedies ordered. Fluids are withheld because of their tendency to excite the secretory and motor functions. Thirst is preferably assuaged by swallowing morsels of ice or by the administration of water enemas at the time of the cleansing irrigations. The ingestion of water is especially to be withheld in those cases in which vomiting is a troublesome symptom.

In one case of the writer's—a girl aged eighteen; ulcer, presumably of six months' duration—the vomiting had been uncontrollable when she was first seen by the writer in consultation with Dr. Deal, who subsequently transferred the case to the writer. The smallest quantity of water, or even particles of unmelted ice swallowed, continued the vomiting when it had been temporarily checked. The condition of the patient when first seen was critical in the extreme Here bowel feeding was at once begun by the writer and continued steadily for three weeks. All food and drink by the mouth was withheld during this time. Vomiting,

pain, and hemorrhage ceased on the third day, and vomiting recurred only when water or ice was surreptitiously taken. Solely without drugs, save iron administered in the nutrient enemas, the patient made a rapid and uninterrupted recovery, without subsequent relapse. Weight had been gained at the termination of the three weeks of exclusive bowel feeding. Feeding was then cautiously begun by the mouth in the manner described below, and in eight weeks from the time of instituting treatment the patient weighed more than she had previously done immediately before symptoms of ulcer appeared.

The technique of bowel feeding, including the forms of enemas used by the writer, is as follows: At the outset of treatment, unless the patient has been for at least five days on an exclusive soft diet, and unless severe or recurrent gastric hemorrhage or obstinate vomiting contraindicates, a laxative (preferably two grains of calomel) is given on the empty stomach, and light food, such as peptonized milk-gruel only, is to be permitted by the mouth until the bowels have freely acted and again become quiet. The action of the calomel may be hastened at the end of six hours by a large warm water enema, or by a small dose of salts. Naturally, if the bowels have been very freely moved without the laxative, it is unessential. Contraindication for the employment of a purge existing—hemorrhage or vomiting—a large warm water cleansing enema may be used instead. If marked gastric irritability is present or hemorrhages have lately occurred, no delay should be permitted before instituting bowel feeding.

The feeding is to be given at intervals of approximately eight hours, as at 7 A.M., 3 and 11 P.M. These hours are the most convenient for all purposes, but may require alteration to suit particular cases. The afternoon hour for feeding may commonly remain a fixed one; the morning or evening hour alone often requires some variations. Thus, if the patient is sleeping at seven in the morning, the feeding hour may be postponed until she awakes, and the evening time for the administration of the enema may be an hour earlier, if the patient cannot rest well by day, in order that the sleep lost by the time consumed in the manipulations of bowel feeding may be thus partly regained. Five to seven hours' retention of the enema are about all that may be expected. One hour before each feeding, or at least before the alternative feeding, the sigmoid flexure is to be irrigated with a pint or more of warm water, plain, or with warm water containing a small teaspoonful of salt. This the patient is encouraged to void after a few minutes. Immediately after its rejection, if thirst is usual, eight ounces of normal salt solution is passed into the sigmoid flexure. This may be permanently retained, or after fifteen minutes voided. Now at the end of one-half to three-quarters of an hour rest of the bowel, the nutritive enema is introduced. The patient is placed on the left side with the knees flexed, the pelvis being elevated by aid of a pillow. The enema is administered either by a fountain syringe or preferably a glass funnel connected through a stretch of rubber tubing about five feet in length. To the terminal end of the tubing is attached, by means of an interposed glass tube, a moderately firm rubber rectal tube. This tube should have a closed end and a large velvet-edged, lateral eye. After warming and oiling, it is carefully inserted as high into the bowel as possible; it should at least reach the promontory of the sacrum, in order that the enema will flow readily into the sigmoid flexure, and little of it escape downward into the rectum. If the tube can be gently passed to the extent of twelve or even eighteen inches, it renders the operation much more likely to be successful.

Composition of the Feeding Enema.—Space does not permit the description of the various nutritive enemas advised by different writers. These may be found in almost any treatise on stomach diseases. The following enema, and its modifications, the author has found so successful that he rarely if ever has occasion to employ others, or many modifications of it. A heaping teaspoonful of somatose, or of one of the newer preparations of concentrated albumen such as nutrose, plasmon, or the like, is dissolved in as little water as possible. One large or two small eggs are now thoroughly whipped with this and then incorporated with either four ounces of peptonized milk-gruel or with two heaping tablespoonfuls of Mellin's food, which is first prepared in the usual manner. The Mellin's food or the gruel should not be added to the whipped egg while too hot lest partial coagulation of the albumen in the latter occur. Instead of the Mellin's food or of the peptonized milk-gruel, four ounces of moderately thick unpeptonized gruel made with fine flour or barley, wheat, or oatmeal may be employed. This must be carefully prepared in order that no particles of adherent cooked

gruel or uncooked flour exist. Even with care in preceding preparation, the gruel had better be run through a hair sieve after making. The whole enema, when of this composition, should not exceed eight ounces, and preferably should be of less amount. After preparing the enema, five grains of an active preparation of papain is added, dissolved in the gruel or in the Mellin's food. If unpeptonized gruel is employed four grains of taka-diastase, or an equal amount of the solution of taka-diastase, is added as well. Peptonization of the egg and conversion of the undextrinized starch proceed rapidly in the bowel, under the aid of these digestants, and absorption of the nutrient enema is prompt. To the enema, in place of the somatose, or in addition to the latter, one to two teaspoonfuls of Mosquera's beef jelly may also be added. If the beef jelly is used it is well to see that it is first thoroughly incorporated in the gruel while the latter is still hot. Mosquera's jelly is perhaps the most valuable preparation of predigested fluid beef on the market, but it is not actually essential to employ it in this connection unless the patient be much reduced in strength. It should not be used in the feeding of the first two or three days, in order to determine as to the agreement of the simpler enema. Commonly it does not render the enema less well borne, and the salts contained in it assist in the absorption of the egg-albumen. Experiments show that a small amount of sodium chloride, approximately one per cent, aids the absorption of the emulsified egg and tends to produce an antiperistaltic movement by which it is presumed the emulsified particles may be carried from the sigmoid flexure to some distance along the colon. It must not be forgotten that the egg contains a little sodium chloride, and that the addition of too great a quantity will not only retard absorption but will irritate the mucous membrane of the bowel and render the retention of the enema less certain. Apart from the enema being better tolerated and absorption being more rapid from the colon than from the rectum, it should be pointed out that the veins draining the colon reach the liver very directly, while those draining the lower part of the rectum communicate with the inferior vena cava, and thus absorbed particles pass only indirectly and tardily to the liver. Albuminoids passing primarily to the liver are so altered that they are more readily retained in the circulation and are thus better fitted for the demands of the organism.

The writer had lately under observation a case of gastric ulcer occurring in a delicate and much emaciated woman, in whom gastric irritation has been intense and the bowel not over tolerant, yet the form of enema described succeeded admirably. There was absolutely no difficulty about its retention. It was employed as described at intervals of approximately eight hours for a period of fourteen days, nothing whatever being allowed by the mouth. It could apparently have been continued for a much longer time and with benefit had the patient not been under observation at a summer resort far from her residence, and undertaken at a time when it was desired she should soon return. In her case, as in others, with the enema well tolerated, there was apparently a condition of better nourishment evident than had been previously manifest with the mouth feeding. The patient presented a far less anemic appearance at the end of two weeks' bowel feeding than before it was begun, when all food taken had caused pain, excessive acidity, and vomiting.

To this enema, when bowel feeding is continued for a longer period than a week, iron is added in every case, as was in that just described, since attention to the removal of the commonly existing anemia is an essential point to promote prompt cicatrization of the ulcer. The form of iron which the writer has employed for many years, and which, answering so well for both rectal or mouth administration in the case of ulcer, has not caused him to experiment with others, is Drees's solution of the albuminate. One drachm is added to each enema for the first two days, two drachms for the second two days, three drachms for the fifth and sixth days, and a tablespoonful thereafter. In many cases, with the enema passed well into the sigmoid flexure and the patient maintained in the left lateral position for from one to two hours, as should be done whatever form of nutrient enema is employed, a much larger amount than eight ounces can readily be borne. A favorite feeding enema with the writer for many years was a pint of peptonized milk-gruel containing somatose and Mosquera's fluid beef jelly (of each two drachms), or, with but one of these, a single well beaten egg.

The enema must be introduced at a temperature slightly above that of the body. Care should be taken that it does not cool in process of preparing the patient for its reception or during its introduction. The warmed

oiled rectal tube should be introduced carefully, in order that the bowel is not irritated by its passage. If the anal orifice is unduly sensitive a hollow cacao butter suppository containing a small quantity of iodoform (grains 2) will generally subdue this, inserted ten to fifteen minutes before the tube is used. If considerable irritability exists, it is well to employ a suppository containing cocaine muriate, gr. ¼ to ⅓; extract of hyoscyamus, gr. ½; iodoform, gr. 2; inserted fifteen to thirty minutes before the feeding. In some cases excessive irritability may necessitate the addition of a small quantity of opium; or fifteen to thirty drops of deodorized tincture of opium in an ounce of water may be introduced instead. It is better, however, to avoid the use of an opiate, if other drugs will answer as well.

Local Treatment of the Ulcer.—In those in whom the stomach-tube can be employed with a fair degree of safety—and in the writer's experience this includes the majority of cases with which he has had to deal—he resorts to the procedure below detailed. Silver has been employed by him in the manner to be described with the most promising results for the past ten years in cases not only of gastric ulcer but in those of chronic gastritis. In the treatment of gastric ulcer he has likewise so used bismuth for a longer time, and alumnol for the past six years. The employment of alumnol in cases of superacidity and in gastric ulcer is original with him. He has now had a large and gratifying experience with it. He desires to state and emphasize the fact that the administration of silver by the mouth with the notion of direct action of the diseased viscus is utterly useless in ulcer or in other gastric ailments, although it is commonly so employed with confident expectation of local benefit. How it can be administered with such expectation is a marvel. Whether given in pill form or in solution but the smallest quantity of food or HCl in the stomach contents must instantly combine with and decompose the salt, thus nullifying completely any local effect. Fasting, in a case with little gastric secretory activity, some small, very local effect can be expected from the use of silver in solution, and yet the dose so employed that is within the limit of safety can accomplish little good. It is scarcely to be expected that the situation of the ulcer can be reached by it. Administered as the writer has used silver nitrate during the past ten years, he has seen distinctly gratifying results occur in almost every case of ulcer, gastritis, or of simple hyperchlorhydria, in which he has employed it. In ulcer, with the patient recumbent, in a decubitus toward the right, the stomach is first washed with cool (65° to 70° F.) or hot (105° to 110° F.) unmedicated water, as may be most agreeable to the stomach. If unaccustomed to the tube, the fauces are slightly cocainized the first few times until the tube can be taken without retching. Five hundred cubic centimeters of a solution of 1:1000 silver nitrate is now passed into the stomach, with the tube just engaging the cardiac orifice. After the lapse of two to four minutes the silver solution is withdrawn, the tube first being further introduced so that the intragastric extremity reaches the lowest part of the stomach.

It is important before the employment of the tube is begun to ascertain the position of the stomach by the usual methods in vogue for this purpose. Gastroptosis, if present, should always be discovered. After the withdrawal of the silver solution, the stomach is immediately washed with cool or warm water, until the washings show no coloration of silver chloride; commonly three or four funnels suffice. If the silver solution excites little or no nausea, it should be retained two to three minutes. Immediately after its introduction the patient is made to assume such positions as will tend to bring the solution into contact with the affected portion of the stomach. The hips are first raised and a decubitus to the right and prone is assumed. Thus the usual situation of ulcer is reached. To reach the inferior curvature the patient takes the knee-chest position for a minute or so, or, by a suitable support, readily made for the purpose, she is placed so that, with the dorsal decubitus, the hips and abdomen are raised considerably higher than the chest, thus allowing the solution to come into contact with the inferior curvature. The whole time of retention should not exceed four minutes, and if it is suspected that the pylorus is unduly patent, or the employment of silver is continued for a longer period than three weeks, a broad binder should be placed rather tightly across the abdomen at the situation of the umbilicus. The writer has rarely used the binder, and has never had untoward results from the local use of silver in his large experience with it. He has, however, never employed it carelessly. In many cases a sojourn of the solution in the stomach for but one minute suffices. All of the solution entered must of course be removed. This

application is made every third day for two weeks, and then at longer intervals.

When the washings show no further discoloration from silver chloride, finally, before the tube is withdrawn, a teaspoonful of a very soft preparation of bismuth subnitrate, in three or four ounces of water, is allowed to flow into the stomach with the tube sufficiently withdrawn so that the intragastric extremity is again at the cardia. The tube is then withdrawn and the patient again assumes the positions stated. It should be pointed out that with subacidity or with anacidity, little or no silver chloride is formed and the silver solution when withdrawn remains little, if at all, discolored. This should be borne in mind, the stomach being well washed whether the solution returns undiscolored or opaque.

Daily, save when the silver is used, 500 cubic centimeters of a 1:500 to 1:250 solution of alumnol is introduced without preliminary washing, if the stomach is believed to be empty. This solution may contain a heaping teaspoonful of bismuth nitrate. The patient assumes the positions before mentioned to insure the solution being brought into contact with the ulcer. The alumnol-bismuth wash is retained about five minutes. Nausea does not occur from the alumnol. The alumnol is not toxic, so no apprehension may be entertained as to ill effects. At the expiration of five minutes, the tube still in the stomach, the solution is siphoned out without the introduction of more water, so that the bismuth deposited upon the stomach walls be not disturbed. Some years ago Fleiner recommended the employment of bismuth alone in this way, but the writer had then been so using it and teaching this method of employment for at least three years. The employment of alumnol in this connection is entirely original with the writer of this article.

In cases in which debility is pronounced, more especially if there be a tendency to recurring gastric hemorrhage, or to vomiting, the method outlined cannot be pursued. In such cases as these the writer omits this local treatment during the period of bowel feeding. Then, if after food by the mouth has been withdrawn little or no tendency to vomiting or hemorrhage exists, he gives by the mouth, three times daily, a small teaspoonful of bismuth subnitrate in three to four ounces of water and has the patient assume such a position as it is presumed will bring the bismuth into contact with the ulcerated surface. This dose is well borne and causes no ill consequences, but so soon as mouth feeding is well under way, as at the expiration of a week, when iron is begun by the mouth, he again resorts to the silver and alumnol treatment.

After the ingestion of bismuth alone, or of the use of the silver and alumnol douche, succeeded by bismuth, no nourishment by the mouth is allowed for three-quarters of an hour to an hour. Small quantities of peptonized milk or of milk-gruel may be given in a half-hour if much weakness is present. The writer commonly employs strychnine hypodermically during the period of rectal feeding, administering grain $\frac{1}{60}$ to $\frac{1}{15}$, according to circumstances, three times daily. Great benefit may be expected from the bismuth treatment in most cases. It is important to know that very few preparations of bismuth, however chemically pure they may be, are suitable for local use. It is a pity that this is not commonly understood, for lack of result is often due to ignorance of this fact. The preparation of bismuth employed must be absolutely free from grit and its particles so intimately divided that when a small portion is dropped into a vessel of water the bismuth will diffuse itself in a cloud-like form, before showing a tendency to settle. But one preparation now on the market does this wholly satisfactorily. Unfortunately for the general free use of this preparation, it is quite expensive, but it is well worth the extra cost. Another which approaches it is considerably less expensive.

Local treatment with silver and alumnol if possible, and always with bismuth, must be continued for from one to three months in a case of long-standing ulcer. Naturally it is impossible to name a definite time and formula for the treatment of each case. The physician must be guided by the duration of the symptoms, their character, and the physical condition of the patient. Of many cases satisfactorily treated in this manner a very brief note of one under observation two years ago would be pertinent here.

Dr. X., aged thirty-eight years, was referred to me by Dr. Tyson. He had been ailing for several years. In the two years before I saw him he had lost about fifty pounds in flesh. This loss was largely due to his being able to retain little nourishment. There had been constant regurgitation of food or drink, and when the stomach was free from food, regurgitation of superacid gastric juice was constant. There was continuous secretion, with

sharp hyperchlorhydria. The characteristic localized pain of ulcer had been present for about a year, and there had been several small gastric hemorrhages noted. He was excessively neurotic, and the renal condition suggested the presence of early granular kidney. The silver and alumnol douches, together with bismuth, were employed as narrated. Alkalies for acidity and the remedies for pain, nausea, and vomiting to be described were used. Bowel feeding could not be continued for a long period, because of his highly nervous condition, rendering retention of the enema difficult after a few days' employment. The peptonized milk-gruel by the mouth for several weeks, with iron albuminate, and later gruels and broths, thickened with farinaceous substances, was his sole diet for several months. A complete recovery followed. All gastric symptoms disappeared, and although he remained for a considerable time under observation there had been no recurrence of symptoms of ulcer, or of the hyperchlorhydria.

During the early period of the treatment of ulcer, while the patient is abed, hot or cold compresses to the epigastrium are to be recommended. These exert a soothing influence and are valuable in allaying pain and vomiting. There is no hard and fast rule as to the special indication for either, save that the hot should not be employed when there has been recent hemorrhage. Often the cool compress is more grateful than the hot application. Moist heat may be applied by poultices or flannel cloths or by spongiopiline wrung out in hot water. Over the cloth is placed an oiled silk cover, and over this a bandage. A more convenient method of employing moist heat, or of applying cold when the latter is especially indicated, as in recurring hemorrhage, is by means of the rubber coil. A highly ingenious and useful apparatus is now on sale, whereby a constant circulation of hot or cold water may be maintained through a coil of tubing convenient of application to any part of the body. To obtain the effect of moist heat with this apparatus, a piece of woolen, first wrung out in hot water, is placed beneath the coil in which hot water is circulating. The coil is covered by dry flannel, oiled silk, and the whole confined by a bandage. The moist compress, at the bodily temperature (the Priessnitz compress) readily worn, is often of great service in relieving local symptoms. It acts as a mild counter-irritant, besides having a soothing effect. Several thicknesses of folded soft linen toweling are shaped to fit the epigastrium, and attached to an oiled silk cover. The compress is wrung out in cool water and confined by a broad flannel bandage. It should be changed twice daily. Sometimes considerable local irritation is developed from its application. When this occurs an interval of an hour should be allowed to elapse between each application, the skin being carefully washed with alcohol, dried without friction, and a light coating of boric acid and oxide of zinc powder dusted on the surface.

There is no question that by the method of complete rest and bowel feeding for ten days to two weeks, immense benefit may be obtained, even though local treatment is impracticable, and bismuth by the mouth, by reason of hemorrhage, or because of great gastric irritability, cannot be used. If the anemia is combated by the addition of iron to the nutrient enema, as directed, and symptomatic indications are met, as will be described, decided improvement may be expected at the end of a week or two when it is thought desirable to begin cautious feeding by the mouth.

The combination of the so-called Carlsbad cure with that by rest the writer cannot recommend. In this country the beneficial results reported in Germany from this method do not occur. The writer's experience with Carlsbad salts is that neither the powder nor crystal form, administered after the most approved method, is well borne in cases of gastric ulcer in which hyperchlorhydria exists. These salts are of even less benefit in ulcer than in the hyperchlorhydria occurring in neurotic or neurasthenic individuals, to whom a course of Carlsbad water is usually distinctly harmful. Gastric disturbance is aggravated, especially the tendency to hyperchlorhydria, and intestinal flatulence, with annoying, constant, slight diarrhea, is often usual.

Debove's plan of treating gastric ulcer, by the systematic employment of sufficient non-irritating alkali to maintain neutralization of the superacid or even normally acid gastric secretion, is far more advantageous than the treatment by Carlsbad salts. Debove combined this with an exclusive milk diet. A glass of undiluted milk is given every two hours for sixteen hours, so that at least two quarts is taken in the twenty-four hours. Ten grains of sodium bicarbonate and three grains of prepared chalk is administered every hour during the day, and repeated at night when symptoms of acidity demand it. At the end

of ten days to two weeks, Debove's meat powder is added to the above diet. Cruveilhier first suggested the use of a milk diet in gastric ulcer, and it has since obtained a great vogue. His idea was that by its employment complete rest of the stomach could be had and yet nutrition be well maintained. That this idea was founded on a fallacy will be later pointed out. The author regards a milk diet as commonly employed useful in few pathological conditions, whether ailments of the gastrointestinal tract or its adnexa, or of the kidneys. He has not found a strict milk diet serviceable in ulcer even when used for a short time.

The symptomatic employment of antacids in ulcer as recommended by Debove is of distinct service. The neutralization method must be combined with whatever plan of treatment is adopted, should there be present hyperchlorhydria. The last is an important point to be determined, since it sometimes occurs that an extreme hyperesthesia of the gastric mucous membrane produces symptoms simulating heightening of the secretory functions with normal or even subacidity. If such can be done, the free and combined HCl should be determined on several occasions, at a period in the digestive phase that normally represents its height, and after such food as is likely to constitute the diet at that time, or later, if bowel feeding is then practiced. Thus the dose of antacid can be regulated with nicety and constant excess avoided. The antacids in common use are sodium bicarbonate, magnesia carbonate, calcined magnesia, and calcium carbonate. Of these, sodium bicarbonate is most used; it has less saturating power than magnesia or calcium carbonate, or than calcined magnesia, and so requires to be given in larger dose. The carbonates must be given with some caution in ulcer lest CO_2 gas disengaged create unpleasant symptoms. Calcined magnesia (magnesium oxide) is not open to this objection. A very pleasant mode of administering it is in the form of a mixture of the hydrate, the so-styled milk of magnesia, a proprietary preparation, of which one drachm equals three grains of the hydrate. The usual dose of sodium bicarbonate as an antacid is from five to thirty grains, and of calcium carbonate from five to fifteen grains. That of calcined magnesia is a trifle less than that of calcium carbonate. For a long time I have employed the following formula in cases of hyperchlorhydria and in ulcer:

Sodium bicarbonate,
Calcined magnesia (magnesia ponderosa),
Calcium carbonate, of each, 1 ounce;
Oil of anise or
Oil of peppermint, 12 minims.

This is ordered as one powder, of which from a quarter of a small teaspoonful to a half or more is taken, mixed with water, as occasion requires. If there is a tendency to constipation, or to unpleasant sensations in the stomach from the evolved gas, when a carbonate is employed, calcined magnesia, or the preparation of the hydrate mentioned, should be employed. When diarrhea exists prepared chalk (calcium carbonate) is to be preferred. On beginning feeding by the mouth, a small dose of antacid, one to one and a half hours after each meal of peptonized milk-gruel, should be given if indications of superacidity exist. If the bowel feeding may be uninterruptedly proceeded with, no food being administered by the mouth, in a short time the secretory function becomes quiescent and little if any alkali is required, save in cases of continuous secretion, such as occur as a consequence of partial pyloric narrowing, with subsequent dilatation.

Treatment of Certain Special Symptoms.—Vomiting, however obstinate previously, usually ceases within a few days after instituting absolute bowel feeding, when nothing is allowed by the mouth, as has been dwelt upon. Moist hot compresses with spongiopiline or the circulating coil to the epigastrium are often helpful, or the continuously worn bandage of Priessnitz may be tried when vomiting is not distressing and does not frequently recur. If the bandage is resultless, a small blister, 1½ inches square, should be applied. Feeding by the mouth should cease and bowel feeding should be cautiously begun. If mouth feeding must be continued, but the smallest quantity of peptonized milk-gruel (which is preferable to peptonized milk) or of expressed meat juice should be allowed by the mouth. Of these but a teaspoonful at half-hour intervals should be tried until the stomach becomes tolerant to a larger quantity. No one remedy can be expected to always control vomiting. Cerium oxalate in doses of three to five grains dry on the tongue, or administered in a teaspoonful of water, repeated at intervals of fifteen minutes, is often successful. A drop or two of dilute hydrocyanic acid is also helpful. Morphine is very often required. The great objection to morphine is the subsequent gastric disturbance

induced by it. Morphine, however introduced into the system, is largely excreted by the mucous membrane of the stomach, and thus in subsequent excretion it often temporarily aggravates a tendency to nausea and vomiting. In some cases, however, when morphine is administered for the relief of vomiting, this subsequent ill effect is not experienced. In order to obtain a sharp initiatory impression, a full dose (from one-fourth to one-third of a grain), the amount depending upon body weight and general condition, had better be administered. With the cerium oxalate may be combined codeine, which is particularly soothing to the stomach; gr. ⅛ of the phosphate or sulphate is sufficient, if the dose of cerium oxalate is often repeated, and cocaine muriate, gr. $\frac{1}{16}$ to gr. ⅛. Washing out the stomach with alternate hot (110° F.) and cold water, provided the physician is practically familiar with the manipulation of the tube, and can accomplish the act with celerity, is often very helpful in vomiting. It may be tried if hemorrhage has not recently occurred.

The bromides by the bowel are often of signal service in controlling the vomiting of gastric ulcer, exerting a decided influence on the nervous element. Very recently in a case of ulcer obstinate and distressing nausea and vomiting was successfully and permanently so controlled. The patient was a young woman greatly emaciated by ulcer of several years' standing. The appearance of the catamenia two weeks after uninterrupted improvement on bowel feeding set up renewed nausea and vomiting, uncontrolled by the usual remedies. Morphine in her had a decided tendency to aggravate the gastric trouble, so it was preferred to leave its employment as a last resort. Instead, at first, forty grains of strontium bromide in three ounces of warm water was given by the bowel. Its influence soon became manifest; vomiting ceased in a half-hour after its administration, and was prevented from recurring by a morning and evening dose of thirty grains by the bowel, employed for two days. Mouth feeding was then begun and vomiting did not occur.

Treatment of Gastric Hemorrhage Occurring in Ulcer.—Absolute physical and mental quiet must be enjoined. The patient should be put to bed, and morphine should be given hypodermically. For several days the patient should be nourished solely by the bowel. There is no remedy the administration of which has any direct influence on gastric hemorrhage if the latter is at all profuse. Capillary hemorrhage—mere oozing of blood—which is not so common in ulcer as in carcinoma, requires no special medication. Rest to the stomach and nourishment by the bowel, with mental and physical quiet, and perhaps cold to the epigastrium, is all that is commonly necessary in the treatment of small hemorrhages. It is here only that ergot can be of efficiency. In frank hemorrhage, occurring as it does usually from the opening of an artery, ergot, from its well known power to cause contraction of the arterioles rather than the larger vessels, and thus raising resistance *a fronte*, is likely, if it has any effect at all, to augment the bleeding. The writer long ago pointed this out in several publications. He has never observed any benefit from its use in hemorrhage the character of which suggests origin from an artery. Hydrastinine hydrochlorate (gr. $\frac{1}{4}$ to gr. 1) hypodermically is worthy of trial, repeated at intervals of two to three hours. Whatever fluid is taken into the stomach should be cold; bits of undissolved ice may be swallowed to allay thirst, and a light-weight ice-bag should be applied to the epigastrium. The extremities must be kept warm in order to determine the blood-stream as much as possible from the stomach. Ewald in two cases succeeded in quickly controlling hemorrhage, otherwise obstinate, by lavage with ice water. Lavage was carefully done, the reflex sensibility of the throat being first partly benumbed with cocaine. In one of Ewald's cases this was successfully repeated three times in the course of a few weeks; in the second and third hemorrhages this treatment was at once applied and was successful.

Washing out the stomach with ice water should only be tried after other measures quickly made use of may fail. It is more likely to succeed when the patient is already accustomed to the tube, but should not be applied by one unacquainted with its manipulation. The lower extremities should first be made warm. If the hemorrhage is profuse and obstinate, the venous trunks (but not the arterial more than is possible) in the inferior extremities should be temporarily compressed by binders, or by a tourniquet, in order to prevent the return of venous blood. If a tendency to collapse exists, hypodermoclysis, by the method now well understood, should be done with sterilized warm normal salt solution, or preferably with the solution of Ringer (containing tri-

basic calcium phosphate and potassium chloride), which far better sustains the heart than does sodium chloride alone. The colon may be flooded with water as hot as can be comfortably borne. This should contain an equivalent of a small teaspoonful of common salt to the pint. If death seems imminent and shock is so great that absorption from the tissues must be too tardy to be of avail, a vein should be promptly opened and the sterilized salt solution passed slowly in by means of a cannula. Blood-pressure must not be too rapidly raised, or the hemorrhage, having ceased, will recur. Not over a pint should be introduced at one time, and its passage should take ten to fifteen minutes. With hypodermoclysis the risk of suddenly raising the blood-pressure to such an extent as to cause dislodgment of the thrombus blocking the opened vessel does not exist. From one to three pints may be passed into the tissues with as much celerity as possible. Here two cannulas may be joined by a Y-shaped glass tube to the apparatus, and diffusion of the solution favored by massage of the soft parts. The caution is necessary that since the fluid passes at best but slowly into the cellular tissue, care must be taken that the fluid does not cool below the body temperature before introduction.

Strychnine and atropine may be used subcutaneously, and perhaps also digitalin, to sustain the flagging heart. Hypodermic injections of camphor, dissolved in olive oil (or, preferably, in the form of a neutral unirritating solution now on the market, especially prepared for subcutaneous use), is also of service in this direction. Whenever an obvious tendency to the occurrence of gastric hemorrhage exists, prepared chalk should be employed, rather than soda or magnesia, if an antacid is necessary. This should be given in doses of approximately ten grains three to five times daily. From this, by the gastric acid, calcium chloride is formed, the effect of which in moderate doses, as is now well known, is to increase the coagulating power of the blood. Recurrence of hemorrhage is thus rendered less likely. Calcium chloride itself, preformed, is too apt to disagree with the stomach in ulcer to be so administered. It may be, however, administered by the rectum. The writer has so used it, but prefers to give the calcium carbonate, from which sufficient calcium chloride is formed for the purpose desired. This idea is believed to be of some value, and is original with the writer.

Mouth Feeding Subsequent to Rectal Alimentation. — This must be begun very cautiously, and preferably not for a week after vomiting and localized pain have disappeared. The food must be for some days such as would be administered had bowel feeding not been practiced. Of course in the event of bowel feeding not having been undertaken, a period of two or three weeks, or even longer—the duration depending upon both the probable duration of the ulcer, and the physical condition of the patient—must elapse before other than the simplest aliment is allowed. As concerns a milk diet in gastric ulcer, the writer should say that both theoretical and practical evidence is quite against the utility claimed for it by many. Administered with the idea of maintaining the stomach in a state of rest is a great fallacy. If there were a condition of absence of the secretory function—most unusual in ulcer of the stomach—milk would pass as a bland unirritating liquid into the duodenum to be digested in the bowel by the aid of the pancreatic juice and the succus entericus, but, with preserved normal or heightened secretory function, this cannot be.

In hyperchlorhydria there is always a large amount of the milk curdling ferment in the gastric juice, and the consequence is that firm coagula of the ingested milk result almost instantaneously on the entrance of the warm milk into the stomach, the digestive secretion of which responds actively to the stimulus of the swallowed liquid. This almost simultaneous solidification of milk by the action of the milk curdling ferment of the active gastric secretion can be tested by any one. Two cubic centimeters of gastric filtrate, obtained by removing the stomach contents at the height of digestion of a simple meal, such as of bread and water, is added to ten cubic centimeters of warm (unboiled) milk—boiled milk is solidified much more slowly than unboiled. It is needless to place the mixture in a warm chamber or on a water-bath, since solidification occurs in a few seconds, providing the gastric juice shows a rather high percentage of HCl. The HCl present has nothing to do with this curd production, but its presence in good quantity is a guarantee as to the presence of an equally large amount of pepsin and of lab ferment, the last of which is that which solidifies milk. But curdling of milk is only the first and most preliminary stage in its digestion, and the firmer the coagulation of the casein the more difficult is its digestion subsequently. The percentage of pepsin and lab ferments present nearly always

runs *pari passu* with the amount of HCl, and the greater the amount of the milk curdling ferment, the more solid and tough is the coagulum formed. The pepsin-HCl must now permeate the curd and break it up in process of its digestion, just as in the digestion of other albuminous food, such as meat or coagulated white of egg. While the curd formed from milk is by no means as difficult of solution as is the breaking up of muscle fiber or the solution of hard-boiled white of egg, it is sufficiently difficult to require a considerable time for the process to take place. This fact is easily demonstrated: A portion of milk curd obtained as above stated is subsequently suspended in a considerable amount of gastric filtrate, rich in pepsin-HCl. This is placed in an incubator, a temperature of 38° C. maintained, and the period required for complete dissolution of the coagulum noted.

With so firm a coagulum as is formed by the aid of the lab ferment in a case of hyperchlorhydria, although the pepsin-HCl present is more potentially active than that in a normal gastric secretion, its task is none the less difficult. It is commonly recommended that magnesia, lime, or sodium bicarbonate be added to milk, or that an antacid be taken after the ingestion of milk, as in Debove's method of treating gastric ulcer. This is done with the notion that the digestion of the milk is thus favored. As a matter of fact an alkali is of no assistance at all in the matter. On the contrary, this employment of the antacid rather impairs than improves the primary and secondary stage of milk digestion. Antacids thus given cannot render the coagulum less firm, since their effect upon the milk curdling ferment is *nil*, but by neutralizing the secreted HCl they for a time merely delay the digestion of the curd and permit its shrinkage, a condition not to be desired. If there were some method of neutralizing the rennin without injury to its coenzyme, pepsin, the super-HCl secreted would be of very great value in the primary digestion of milk, as doubtless it nevertheless is in some cases. To administer an antacid with the milk is to destroy the desired result. The addition of acids to milk, such as dilute HCl for instance, forms a highly flocculent curd, consisting of innumerable soft coagula, most easy of penetration and digestion by pepsin-HCl. It is to prevent this action of the gastric acid, in order to test for the presence of rennin in the removed stomach contents, that it is recommended by the physiological chemist to first neutralize the filtrate before its addition to milk. This flocculent precipitation of milk under the influence of a comparatively large amount of HCl is even more prompt than is the formation of the large, solid, tough coagulum, by the accompanying rennin.

These facts plainly indicate why milk often causes so much digestive trouble in gastrointestinal ailments and in other diseases in which it is regarded by so many to be an ideal food. These vaunters of the universal virtues of milk as a diet in diseases of the gastrointestinal canal are ignorant or thoughtless of the fundamental facts pertaining to digestion. In typhoid fever or in other acute fevers and wasting diseases, and in certain diseases of the stomach in which there is much diminished secretory power, there ordinarily still remains sufficient rennin secreted to curdle milk, but not sufficient pepsin-HCl combination for the proper digestion of the curds so formed. The pancreatic secretion being also largely in abeyance, the curds finally pass from the stomach into the bowel and thence onward, little if at all digested, and serve in the surjoin in the bowel as a nidus for bacterial multiplication. In gastric ulcer these firm curds are practically all digested in the stomach, but in process of digestion the secretory and motor functions are quite as much taxed as if solid food were eaten and little rest is actually allowed for the diseased viscus. If milk unpancreatinized thus be given, it should be diluted (one-half to one-third) with simple water, or with an aërated water, so that by this means the formation of firm curds is rendered impossible. The presence of an alkali is of no manner of use in preventing the latter. But so diluted either the stomach must be overdistended with fluid or not nearly as much nutrient can be given as would be otherwise possible. For this reason the milk regimen, as ordinarily prescribed, is impracticable. If milk is used at all it should be first pancreatinized. It is thus so changed that formation of more than traces of curd is impossible, and it is in condition to pass at once, predigested, into the bowel for rapid absorption there. Antacids may then be freely and harmlessly given to neutralize the HCl of the gastric secretion, as the latter is not required for further digestion. There thus being little or no demand made on the secretory function, and the motor function being little if at all taxed by the digested fluid milk, and the ulcer also unirritated, after a time, neutralization of the secreted

acid being systematically practiced, a not long delayed diminution in formation of the latter occurs.

The great objection to peptonized milk is the taste; this is partially obviated by not prolonging the period of peptonization beyond the faintly bitter stage and then raising the temperature of the milk to a point sufficient to destroy the contained ferments. It is better that the milk should not be boiled. Far preferable to peptonized milk is peptonized (pancreatinized) milk-gruel, prepared after Sir William Roberts's process. Pancreatinization here need not be carried beyond slight bitterness of taste, which commonly is not at all objectionable in the milk-gruel. Sufficient digestion has then taken place for all practical purposes. The formula for pancreatinizing milk and preparing the milk-gruel is given in the slip accompanying the tubes of pancreatin and soda as sold in the shops and in all the books, so need not be repeated here. Concerning the preparation of peptonized milk-gruel it should be said, however, that it is preferable to strain after its digestion, and not on mixing as is generally advised.

The writer employs a diet of peptonized milk-gruel in all cases of ulcer in the early part of the treatment, when feeding by the bowel is not practiced, and always uses it as the first food for a number of days on the cessation of bowel feeding, giving antacids systematically, as before described, when there is hyperchlorhydria. But small quantities of the gruel must be allowed at first, on reinitiating mouth feeding, even when pain and nausea or vomiting have been absent for some days. It is well to start with a tablespoonful of peptonized milk-gruel every half-hour, until three to six tablespoonfuls are taken. These agreeing, one ounce is given every hour until three or four feedings have passed. Then two ounces are administered every two hours for some two or three feedings, and then three ounces every two hours, increased on the third day to four ounces at from two- to three-hour intervals, and then gradually increasing to five, six, or more ounces. With this the writer often combines somatose, either incorporated in the milk-gruel or given before or after the latter. For the first two or three times a half of a small teaspoonful of somatose is administered. This amount is gradually increased until on the third or fourth day after starting somatose a heaping teaspoonful is taken every alternate feeding. The bowel feeding is not discontinued abruptly on starting with feeding by the mouth. At first the midday feeding is omitted; in two or three days either the morning or evening feeding, and finally, in a day or two more, the stomach continuing tolerant, bowel feeding is stopped.

In place of somatose the writer lately has been employing the valuable and less expensive caseine albumen compounds, such as plasmon and nutrose. These are usually well borne and are highly nutritious. They are especially useful in cases in which a tendency to a high HCl production exists. A somewhat similar concentrated albumen compound is tropon. This the writer has used rather extensively in general hospital work, but has had less experience with it as a food in convalescence from gastric ulcer.

Soon Drees's solution of the albuminate of iron may be given in a small dose with each mouth feeding. At first the dose is twenty drops, increasing by five to ten drops until a large teaspoonful is reached. This, at the termination of a week, is increased to two teaspoonfuls four times daily, and this later on gradually to a tablespoonful. The case of gastric ulcer in which hemorrhage was frequent, and vomiting was so constant and severe that it threatened life, was so treated, as has been told, making a very prompt and uninterrupted recovery.

At the end of approximately two weeks after discontinuance of bowel feeding, or in three to five weeks when this has not been practiced, unsalted broth of mutton and chicken, thickened with farina, or very thoroughly cooked barley or rice, should be given. Alternately with this the white of a beaten egg is added—somatose, plasmon or nutrose is continued as before. Somewhat later gelatin and purées, the latter made at first with but little cream, are allowed, as is either the pulp of scraped lightly broiled tenderloin steak, or the same raw; the last then formed into cakes and quickly cooked on a very hot griddle. These may be flavored with a small pinch of salt. The white of a coddled egg may also now be taken, seasoned with a pinch of salt and the addition of a little butter. This agreeing, on another day two whites may be so taken; and finally, gastric symptoms being practically absent, and some time having elapsed since treatment was begun, the yolk of the egg may also be eaten. A well beaten egg with milk may now be occasionally given, should improvement be continuous. While overtaxing the stomach must be most carefully guarded against, at the same time the bodily nutrition must be so

raised and held that complete and permanent cicatrization of the ulcer occur. On the slightest appearance of renewed symptoms, feeding must again be for a time of the simplest kind, and of the smallest amount; and, if necessary, all food by the mouth should again be temporarily withdrawn and bowel feeding reemployed.

Unpancreatinized gruels (not salted in cooking) made with the finely ground meal, such as wheat, barley, or oats, to which milk is added after cooking, may be tried in small quantity to replace the peptonized milk-gruel after the latter has been taken for a week to ten days in a case previously on bowel feeding; and progressing well with these, a small quantity of an active diastase had better be administered. One to two grains is sufficient for three to four ounces of moderately thick gruel. In the case of ulcer with marked hyperchlorhydria previously mentioned (Dr. X.) nothing save these gruels, alternated with unsalted mutton and chicken broth, thickened with farina, was eaten for many months. Somatose and Drees's albuminate of iron were also freely given. On this regimen, at the expiration of a few months, the patient completely regained his former strength and most of the fifty pounds in weight lost. Indications of ulcer, or of the hyperchlorhydria, had not returned at the end of a year when last heard from.

1429 WALNUT ST., PHILADELPHIA.

THE TREATMENT OF MOVABLE KIDNEY, FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.

ALEXANDER MARCY, JR., tells us in the *Journal of the American Medical Association* of February 9, 1901, that the treatment may be divided into medical, mechanical, and surgical.

1. The medical treatment would consist in the use of such measures as will improve the general health of the patient, together with the accumulation of surplus fat. The rest treatment, with forced feeding and massage, is sometimes beneficial, at least temporarily, but as soon as the patient returns to her ordinary duties the condition is, in most cases, reproduced. Toning up the nervous system, as well as the digestive apparatus, relieves the effects of this condition sometimes, but does not alter the conditions themselves, and therefore must of necessity only be temporary. For this purpose the author knows nothing equal to tincture of nux vomica in large doses, together with cold douching of the spine, followed by brisk rubbing.

2. The mechanical treatment consists in the use of elastic bandages, sometimes fitted with a special pad, called a kidney pad; and in some cases this device relieves the symptoms, but it is doubtful if it ever keeps the kidney in its proper place.

3. The ideal treatment is surgical, and with our improved methods and technique it is attended with a very small mortality, practically none at all when it is not complicated by other abnormal conditions.

This condition is so frequently found in multiparæ, and associated with various lesions of the uterus and other pelvic organs, that the gynecologist necessarily comes in contact with the greater number of cases, and many operations have been devised for its relief.

It is not the purpose of the author to discuss the merits of the different operations, nor to recommend any particular one, but his own cases have always had a nephrorrhaphy done, with buried silkworm-gut sutures, and in every instance the patients have been restored to perfect health and able to perform all the duties required of them in their different stations in life without any difficulty.

To recapitulate, he emphasizes the following points: Examine carefully every patient who weighs less than 120 pounds and complains of general nervous symptoms, indigestion, palpitation, etc., for movable kidney. If you do not find it at your first examination, look for it again, and even for the third time, as you will frequently fail to find it at your first examination, and will be able to demonstrate it at your second or third. After having found it, study carefully all the symptoms and conditions and decide what is best to be done. When you have so decided, if you favor surgical treatment and are not qualified to operate yourself, call to your assistance some one who is and have him operate for you. As to the particular operation, let the surgeon decide that point and hold him responsible for the results. In conclusion the author says: "If I have succeeded in interesting one general practitioner in this important subject, and he goes home inspired with the knowledge that he can bring relief to some of his patients who may have been suffering for a long time from this condition unsuspected, then I shall consider my time and effort well spent and shall feel amply repaid for what has been so imperfectly done."

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF GASTRIC ULCER WITH HEMORRHAGE.

The fact that small ulcers of the stomach may, if unfortunately placed, result in fatal hemorrhage, even although the ulcerative process may be limited, combined with the additional fact that surgical interference in gastric disorders is now so much more possible than heretofore, makes it important for us to consider the measures which should be instituted by the up-to-date physician when he is called to a patient who is suffering from gastric ulcer, and who perhaps has already presented signs of hemorrhage, either by the appearance of blood in the vomit or by the development of symptoms which show that the vital fluid is being poured out into the stomach and intestine. There can be no doubt whatever that, in a certain proportion of cases, dangerous or even fatal hemorrhage comes on without the patient having complained for any length of time of symptoms which would make one suspect gastric difficulty; and these cases of sudden onset are readily explained when a study is made of the gastric mucous membrane of a considerable number of patients who have died with or without symptoms of gastric ulceration.

At first one would suppose that dangerous hemorrhage from the stomach would be likely to occur only in those cases in which ulceration had existed for a considerable period of time and had developed a well marked pathological process, and certainly the first impulse is to expect to find a large area of ulceration at an autopsy held upon a patient who has died from gastric hemorrhage. As we have already pointed out, however, post-mortem findings indicate that an ulcer may be exceedingly small in diameter and yet deep enough to erode an important blood-vessel, particularly if the ulceration takes place in the mucous membrane immediately over the blood-vessel. Indeed, in some of these cases the gastric mucous membrane has to be examined with the utmost care, or even with a magnifying glass, in order to discover the area over which the hemorrhage has occurred so profusely.

These important facts have recently been strongly emphasized in a paper published by H. N. Heineman in the *Medical Record* of March 9, 1901. Aside from the pathological interest in these facts there is a distinct diagnostic and therapeutic interest, and the question of prognosis in cases of gastric ulcer must always be decided with the recollection of the facts that we have just mentioned. The physician who has under his care a case of gastric ulcer with moderate symptoms must have almost as much, if not quite as much, anxiety concerning the possibility of the occurrence of dangerous hemorrhage as must the physician who has a case in which he believes that the area of ulceration is large; and it seems to us that the therapeutic indication in cases of suspected gastric ulcer with moderately severe hemorrhage is operative interference, or at least a careful consideration of such interference, since at any time the hemorrhage may become profuse enough to rapidly endanger the patient's life and exhaust him to such an extent that operative interference is impossible. On the other hand, it must not be forgotten that cases not rarely suffer from quite profuse gastric hemorrhage, that the hemorrhage becomes arrested through physiological or therapeutic measures, and that recovery takes place without operation being performed. Nor are we to forget that the discovery of the

point of bleeding from the inner surface of the stomach after opening the peritoneal cavity may be so difficult as to be impossible, unless the stomach is opened from end to end and practically turned inside out, when, as Heineman points out, it may still be almost impossible to find the small area from which the blood has freely flowed unless perchance active hemorrhage is taking place at the time that the stomach is open.

Fortunately, there is no hemorrhage occurring in an internal organ which affords better opportunities for arrest by means of the administration of styptics than hemorrhage of the stomach, unless perchance it be hemorrhage of the bladder. The use of styptics in intestinal hemorrhage in the vast majority of cases is probably useless. But the gastric mucous membrane can readily be brought under the influence of astringents, and the blood as it oozes from the blood-vessel can frequently be coagulated by the administration of such drugs. We are inclined to think that in many cases of gastric ulcer, with or without hemorrhage, the physician is too apt to permit a certain amount of gastric feeding when in reality he should insist upon a rigid abstinence from all food by the mouth and upon rectal injections to support the patient, allowing the smallest quantity of liquid by the mouth that is possible, in order that peristalsis in the stomach walls may not be carried on owing to the presence of this liquid. Internally in the presence of a moderate gastric hemorrhage we would suggest the administration of Monsell's solution in water, and the administration of a full hypodermic dose of morphine to arrest gastric movement, followed by the use of rectal feeding for a period of a week or ten days at least, and the support and nutrition of the patient by the performance of hypodermoclysis with normal salt solution, which will keep the body properly supplied with fluid and flush the kidneys without the patient being required to drink water. Of all the forms of normal salt solution which have been suggested, undoubtedly the formula which is put up under the name of "Concentrated Saline" in sterilized ounce bottles is the best, for this is not only sterile but contains all the salts which are necessary for the preparation of a pure and normal artificial serum. This salt solution is instantly prepared by adding the contents of one such bottle to a quart of pure boiled water. Where hemorrhage has occurred, the injection of this fluid does not only act as an artificial serum when given subcutaneously, but also acts in supporting the circulation, since the combination of the salts that we have named is somewhat stimulating to the heart.

A further point in connection with the question of operation in gastric ulcer is the question as to whether the disease is acute or chronic. When there is history pointing to ulceration of the stomach having been present for a long period of time, the probability, or at least the possibility, of adhesions between the stomach and the neighboring organs must always be taken into consideration, as these adhesions may render the operation difficult or impossible. The literature of medicine during the last few years has contained a large number of articles upon the question of operative interference in cases of ulceration, and many of our readers are doubtless familiar with one of the best which has appeared in this country, namely, that of Professor Keen and Dr. Tinker, while in Europe the most notable have been the articles of Mikulicz.

THE USE OF PRESERVATIVES FOR SOLUTIONS OF SUPRARENAL EXTRACT.

When the extract of suprarenal gland was first introduced into medicine as a valuable constrictor of those blood-vessels with which it was brought into contact, much difficulty was found in preserving solutions of it from decomposition and change, and various substances were added to it to prevent alterations taking place in its character. Boric acid and similar preservatives were employed without much success; and recently in the *New York Medical Journal* of March 9, 1901, Oppenheimer records the results which he has obtained by adding resorcin in the strength of one per cent to the solutions of suprarenal gland with the object of preserving them. He states that by this means he has been able to counteract all deteriorating influences. As a matter of fact, if suprarenal gland in its original form is employed, we believe that the best preservative to be added to it is chloretone, which is not only an anesthetic but an antiseptic in its influence upon the mucous membranes, and which certainly seems to increase rather than to decrease the activity of the extract. With the advances which are being made, however, in the preparation of suprarenal gland for medicinal use, it would seem probable that even so useful a preservative as chloretone will even-

tually not be required, and there is now upon the market, under the name of adrenalin chloride, an active principle of suprarenal gland which in even so diluted a solution as 1 to 20,000 exerts a physiological effect, and which when dissolved in normal salt solution in the strength of 1 to 5000 is a most efficient local vasoconstrictor.

THE EMPLOYMENT OF HEAT AS A THERAPEUTIC AND DIAGNOSTIC MEASURE.

Many pages have been written of the therapeutic value of the local application of dry heat or moist heat in the treatment of various painful and inflammatory processes. It is a familiar fact to many practitioners that soaking a sprained ankle in very hot water will often do much toward relieving the pain and allaying inflammation and swelling, and that the use of repeated very hot vaginal douches will often relieve pelvic pain due to congestion or spasm. So, too, irrigation of the external auditory canal with very hot water is not only a pain-relieving but a curative measure in cases of inflammation of the middle ear. The other external and internal uses of hot water are exceedingly numerous.

The object of this editorial note, however, is to call attention to a proposition recently advanced by Lewin, of Berlin. He claims that by the use of the local application of heat we can make a diagnosis as to whether an acute inflammatory process has gone on to suppuration—as, for example, in a case of appendicitis. He asserts that if pus has not yet formed, the application of heat will be a comfort to the patient, whereas, on the other hand, if pus is present, it will so increase and exacerbate the pain that a diagnosis of the presence of this material can be made with assurance. He states as an example that in cases of swelling of the knee associated with rheumatism or otherwise, we not infrequently are able to give great relief if the knee is put at rest with a fixation splint, and heat is actively employed. If by any chance pus is present the pain is augmented and becomes intolerable. Lewin states that he has employed heat for this purpose in a sufficient number of cases to make him feel confident that he cannot be mistaken in regard to this point, and he cites ten cases of appendicitis in which the heat was applied for two hours by means of hot compresses and without the use of internal pain-relievers. Eight of these received this treatment with a good deal of relief, but the remaining two showed marked increase in pain. Of the eight cases all went on to cure in the space of from five days to three weeks, while, on the contrary, the two which suffered an increase in pain after the application of the heat required the administration of opium for the relief of pain, and both of them died.

The experience of Sphor, of Frankfort-on-the-Main, is also quoted. In fifteen cases of appendicitis which had hot applications without internal treatment very similar results were obtained. So, too, in three cases of perimetritis two were relieved by the application of heat and recovery promptly took place; while in the third patient the pain was greatly increased, and later on a large quantity of pus was discharged by the vagina.

If further investigations show that this method of diagnosis is at all accurate, it is so simple in its application that it cannot fail to prove of value.

THE PREVENTION OF YELLOW FEVER.

It is not the intention in this editorial to deal exhaustively with this important subject, than which there is none more important to the Southern portion of the United States because of its near proximity to that portion of the world in which the disease is practically endemic. For many years it was universally taught that yellow fever was conveyed by fomites, and it was held that residence above a certain level was important in preventing infection.

About eighteen months ago we first published in the THERAPEUTIC GAZETTE an editorial which drew attention to the interesting experiments which had been made in which it seemed proven that the vast majority, if not all, cases of malarial infection depended upon the bite of the mosquito, which had acted as an intermediate host. Since that time further investigations have proved the absolute correctness of what was then a hypothesis, and we now know that if malaria is to be prevented we must use active measures against the propagation of the Anopheles. Still more recent investigations seem to hold out equally interesting results in connection with yellow fever, and, as it is the function of the physician not only to use remedial measures in the treatment of disease but preventive measures

as well, we call attention to a recent paper published by Dr. Walter Reed, one of the surgeons of the United States army, and by Dr. Carroll and Dr. Agramonte, acting assistant surgeons in the army, in the *Journal of the American Medical Association* of February 16, 1901. The results which these investigators have obtained, after carrying out interesting exhaustive experiments and investigations, are of the greatest possible value, and for this reason we print their conclusions below, since it is evident that the mosquito is at least an active participant in producing infection, even if future researches indicate that other means may be active in the spread of the disease:

1. The mosquito—*C. fasciatus*—serves as the intermediate host for the parasite of yellow fever.

2. Yellow fever is transmitted to the non-immune individual by means of the bite of the mosquito that has previously fed on the blood of those sick with this disease.

3. An interval of about twelve days or more after contamination appears to be necessary before the mosquito is capable of conveying the infection.

4. The bite of the mosquito at an earlier period after contamination does not appear to confer any immunity against a subsequent attack.

5. Yellow fever can also be experimentally produced by the subcutaneous injection of blood taken from the general circulation during the first and second days of this disease.

6. An attack of yellow fever, produced by the bite of the mosquito, confers immunity against the subsequent injection of the blood of the individual suffering from the non-experimental form of this disease.

7. The period of incubation in thirteen cases of experimental yellow fever has varied from forty-one hours to five days and seventeen hours.

8. Yellow fever is not conveyed by fomites, and hence disinfection of clothing, bedding, or merchandise, supposedly contaminated by contact with those sick with this disease, is unnecessary.

9. A house may be said to be infected with yellow fever only when there are present within its walls contaminated mosquitoes capable of conveying the parasite of this disease.

10. The spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes, and the protection of the sick against the bites of these insects.

11. While the mode of propagation of yellow fever has now been definitely determined, the specific cause of this disease remains to be discovered.

MALARIAL HEMATURIA.

In connection with the papers which we publish in this issue of the THERAPEUTIC GAZETTE dealing with the subject of malarial hematuria, it may not be out of place to call attention to a very interesting paper upon this subject which is published in the March issue of the *London Practitioner* by Dr. Louis W. Sambon, who is lecturer in the London School of Tropical Medicine. This author is very positive that this condition, which is variously known as blackwater fever, bilious remittent fever, bilious hematuric fever, hemoglobinuric fever, and hematuria, is an acute affection characterized by sudden and intense blood breakdown, and marked clinically by irregular paroxysmal fever accompanied by chills, bilious vomiting, and hemoglobinuria. After describing the symptoms which are apt to be present in such an attack, and pointing out that relapses are common, and that the mortality in Africa is sometimes as high as fifty or sixty per cent, he goes on to call attention to the fact that in Greece it is about twenty-two per cent. He believes that the color of the urine is nearly always due to hemoglobin and not to the actual presence of blood itself. But what interests us particularly is what he has to say in regard to the causation of the hematuria and his beliefs concerning its treatment. He points out that there are three views held as to the causation of blackwater fever—the malarial theory, the quinine theory, and the specific theory. As he well says, the malarial theory finds general acceptance because of the appearance of this condition in malarious regions, because it appears in persons who have previously suffered from malaria, and because of the finding of malarial parasites or the black pigment produced by its existence in such cases. He concludes, however, that one thing is certain, namely, that hemoglobinuric fever not uncommonly attacks persons who have never had malarial disease before, and he evidently believes that this condition may develop as the result of infection with a particular form of malarial parasite.

In regard to the quinine theory, in which

the readers of the THERAPEUTIC GAZETTE will remember we have been interested for many years, he quotes the facts already familiar to us all, namely, that Tomaselli and a number of Greek physicians all preceded Koch in the assertion that blackwater fever was nothing more or less than quinine poisoning, while British physicians have been practically unanimous in protesting against this theory, particularly as quinine, even when given in toxic doses, never produces blackwater fever in healthy persons. Sambon concludes that the explanation of most of the cases in which hemoglobinuria has followed the administration of quinine is coincidence, the patient happening to be infected by a particular parasite producing this manifestation at the time that the quinine was given. That is to say, he thinks that the connection of quinine and blackwater fever is not one of cause but merely one of coincidence.

Finally, it is evident from Sambon's paper that he believes that blackwater fever depends upon a distinct specific infection. He reminds us that hemoglobinuric fever is also found in sheep, goats, horses, and mules, and that the symptoms in these animals are identical with hemoglobinuric fever in man. Perhaps this is the reason why in a certain proportion of cases the administration of quinine seems to be followed by so little relief.

It is a somewhat puzzling and an almost amusing condition of affairs that in the London *Lancet* of March 23 there should be a paper upon blackwater fever by J. W. W. Stephens, in which this author insists most positively that quinine is distinctly harmful in this condition, and as will be seen in our Progress columns, says that no one can doubt that blackwater fever is essentially a malarial infection in which quinine is the most common immediate determining cause of intoxication. As Stephens's paper is based upon the reports of the Malarial Committee of the Royal Society prepared by himself and S. R. Christophers, it must have a certain amount of weight. Personally we believe that malarial hematuria and hemoglobinuria will ultimately be found to depend upon very different causes. In some cases it will be found that the true malarial parasite is the cause of the disease. In other instances it will probably be discovered that an entirely different organism belonging to the same general type of parasites is responsible for the development of this dangerous and much to be dreaded complication.

THE VALUE OF THE ROENTGEN METHOD OF DIAGNOSIS IN DETECTING AND EXCLUDING RENAL AND URETERAL CALCULI.

Dr. Leonard, than whom perhaps none has had a larger experience in the application of the *x*-ray to the diagnosis of urinary calculi, states that from an examination of 136 cases in which renal or ureteral calculi were suspected, and the detection of nineteen cases of ureteral and seventeen cases of renal calculus, that both the negative and positive diagnosis by the Roentgen method is accurate and valuable; that ureteral calculus is much more common than is supposed, forming about fifty per cent of all cases of calculus; that it is impossible to arrive at as accurate a diagnosis of calculus by other methods; that the method is comprehensive, and aids operative intervention by localizing all calculi and excluding all calculi from the other kidney; that non-operative treatment, without a negative diagnosis by this method, is irrational and dangerous in cases that are at all suspicious; that the method is precise because its results are mechanically produced, but that accuracy in its employment and care in reading the results are necessary to the avoidance of error; that the data obtained by this method make non-operative, conservative treatment rational in cases of small calculi low down in the ureter that can be expected to pass; and that the negative diagnosis does not preclude exploratory nephrotomy, but does make unnecessary the actual incision into the kidney in search of calculi.

Though it cannot be doubted that the use of the *x*-ray has been of enormous service in the positive diagnosis of ureteral calculi, the claims made by Leonard for this method are altogether too sweeping. In the hands of even the most expert calculi may be present, and yet may fail to cast a shadow. It also has happened that thrombi have very frequently been mistaken for calculi, and that thus unnecessary operations have been performed because of a too blind following of the indications of the *x*-ray photograph.

GONORRHEAL COXITIS.

There is a popular belief to the effect that arthritis is not only a comparatively rare complication of gonorrhea, but is also one which, though painful, is prone to undergo complete

resolution. The involvement of the hip-joint is considered so rare that in the majority of text-books it is merely mentioned as a possibility, and the symptomatology, prognosis, and treatment are not given consideration.

König's contribution to this subject is worth careful study (*Münchener Medicinische Wochenschrift*, 38 Jhrg., No. 3), not only because of the established reputation of the writer, but because he shows that a gonorrheal coxitis is by no means a surgical curiosity, and that it is likely to be attended with most serious results. He reports twenty cases, most of them in women. He notes that the disease is most prone to develop during the acute stages of a gonorrhea, and is favored in its development by pregnancy and the puerperium.

The affection is often bilateral, and other joints may be involved. When it develops during a late stage of gonorrhea it is often associated with vertebral involvement, resulting in ankylosis. The onset may be insidious or violent. In the former case there is a moderate pain and restriction of motion; in the latter the pain amounts to positive anguish, the limb is completely fixed, and there is often pronounced swelling. The thigh will usually be found flexed, abducted, and everted. This posture will produce an apparent lengthening, and was noted in half the cases. In twenty-five per cent König noted adduction, inversion, and flexion, producing an apparent shortening. In some cases there was a real shortening of upwards of an inch.

Swelling was a characteristic symptom, sometimes associated with fever.

But twenty-five per cent of König's cases recovered without disability. This was slight in about half the remaining cases, and was extremely pronounced in the remainder. There was shortening, stiffness, and often a faulty position.

It would seem wise to treat this affection in its early stages by absolute fixation, such as, for instance, could be obtained by the application of a plaster-of-Paris bandage. At the same time careful attention should be devoted to the curing of the gonorrhea. Where pain exists and is unbearable and the swelling is pronounced, it would be justifiable to treat the joint by tapping and flushing.

Though König states that during the acute stage operative interference is rarely needful, ankylosis may require either osteotomy or resection for its relief.

ABDOMINAL SENSIBILITY.

With the popularization of local anesthesia, and with its very general adoption for the performance of major abdominal operations when general anesthesia would be objectionable, either because of the profoundly shocked state of the patient or because of the fear of some of the after-effects of the general anesthetics, there has come a greatly extended knowledge as to the sensibility of the abdominal contents. Most surgeons have noted after an infiltration anesthesia with one-fifth- or one-half-per-cent solution of cocaine or eucaine that the operation could be made quite painless until the parietal peritoneum was reached, but that incisions through this membrane, the pinching of it with hemostats, particularly stretching or pulling on it, caused severe, even quite unbearable, pain. They have also noted that when the peritoneal incision was made, further operative procedures upon the abdominal contents were painless, and that the intestine could be pinched, cut, and sutured without causing any suffering to the patient.

Lennender has devoted particular attention to this matter of intraperitoneal anesthesia. He has had an unusually large experience with local anesthesia in nearly all forms of grave abdominal operations, and notes that the visceral peritoneum, the stomach, the intestines, the gall-bladder, the kidneys, and the liver are insensible to pain, cold, warmth, and contact. The parietal peritoneum is, however, singularly rich in sensory nerves. This is not in accord with general teaching, which has led us to believe that the normal, healthy peritoneum is non-sensitive except when inflamed, when it is extremely hypersensitive; and this without regard to its being either parietal or visceral, although this teaching is not corroborated by daily experience, which shows that the parietal peritoneum is invariably sensitive whether it be inflamed or not. It has generally been accepted because it is repeated in text-books and in special articles upon this subject.

Lennender makes certain very important deductions from his observations concerning the pain of inflammatory intraperitoneal lesions. Thus he believes that this pain is due not to a suddenly developed hypersensitiveness of a previously non-sensitive membrane, but that it is due either to tension upon the parietal peritoneum or to extension of inflammation to it. He says that affections of the mucosa, ulcers of the stomach

dysenteric, tuberculous, typhoid, or malignant degenerations do not give pain until they have excited a localized or diffused inflammation of the parietal peritoneum. He believes that the pain of adhesions is easily explained, since they act by pulling and drawing upon the parietal peritoneum, and hence a single point would produce more pain than diffuse adhesions. The pain of chronic appendicitis he explains on the basis of chronic lymphangitis and lymphadenitis of the parietal subserous fascia, and of adhesions to the parietal peritoneum by means of which the latter is pulled upon and stretched by the varying conditions of dilatation of the ileum and cæcum.

It happens in certain cases of acute, diffuse peritonitis that the patient complains of so little pain and tenderness that the surgeon may be led astray in his diagnosis. One such patient, seen by Lennender, was treated for typhoid fever, but died. The abdominal tenderness and pain were but slightly marked. On section two perforations of the gut were found, and in the true pelvis and central part of the belly there was a huge abscess cavity bounded above by the transverse colon and mesocolon, at the sides by the colon, and anteriorly by the omentum, which was slightly adherent to the abdominal wall and firmly bound down in the true pelvis. The absence of pain and tenderness would here be explained by the fact that the parietal peritoneum, at least that of the anterior abdominal wall, was not invaded. It is noteworthy, however, that on rectal examination very great tenderness was detected, due undoubtedly to the involvement of the parietal pelvic peritoneum.

Every surgeon is familiar with the fact that even slight cases of appendicitis exhibit most pronounced tenderness on pressure when the appendix is adherent to the anterior abdominal wall.

From these facts and many others corroborating them, it seems reasonable to believe that tenderness elicited by palpation of the abdomen is to a great extent dependent upon the presence or absence of a parietal peritonitis. It is also clear that in all cases of pelvic peritonitis or of diffuse general peritonitis, palpation through the vagina or rectum is of cardinal importance, since this pressure can be brought directly to bear upon the pelvic parietal peritoneum, and can thus demonstrate the presence or absence of inflammation.

Lennender holds that when an inflammatory exudate is so placed that it neither involves directly nor secondarily the parietal peritoneum, it will give rise to neither subcutaneous pain nor to tenderness on pressure.

He has always been skeptical as to the advisability of performing celiotomy under local anesthesia, since he has observed the powerful depressing effect of pain upon a weak heart. Lately, however, he has come to the conclusion that a combination of local and general anesthesia is likely to be extremely serviceable. He advises before the beginning of an operation a hypodermic injection of morphine, then Schleich's infiltration into the skin and subcutaneous tissues. When the serosa is reached the patient is put under the influence of chloroform or ether. After a few whiffs sensibility is abolished, the peritoneum is opened, and adhesions to it are freed. All preparations are then made for whatever intra-abdominal operations are necessary, after which the general anesthetic is withdrawn. On the completion of the intraperitoneal operation — for instance, an anastomosis or a stomach resection—a general anesthetic is again given, compresses are withdrawn, always a painful procedure, and the parietal peritoneum is sutured. The operation is then completed under local anesthesia alone. So little chloroform or ether is required that vomiting is not occasioned. Under these circumstances a longer abdominal incision is required than would be needed under general anesthesia, since stretching of the abdominal wound by retractors is especially painful.

The patient should not be allowed to either see or hear anything which would give him a definite idea of the extent of his wound or the character of the operation.

Reports on Therapeutic Progress

THE USE OF IODOL IN THE TREATMENT OF TUBERCULOSIS OF THE LUNG.

On this subject MELLOR TYSON writes in the *Journal of Tuberculosis* for January, 1901. He says that the treatment of pulmonary consumption by inunction of some one of the preparations containing iodine is not a new one, and most of those who have written on this subject recommend the preparations containing the largest amount of iodine. In recent papers great efficiency has been claimed for europhen, which contains 27.6 per cent iodine, and iodoform, which con-

tains 33 per cent. It has been found that patients in the incipient stage under this treatment have improved, while it has been claimed that some were cured. In the advanced stage improvement was reported, but no cures. In the far advanced cases no benefit resulted. It is reasonable to suppose that any preparations containing a large quantity of iodine would be still more beneficial.

When used by inunction digestion is not interfered with, as it is by creosote and iodoform when given by the mouth. By this method a larger dose can also be administered, and as it causes no irritation of the skin, the treatment can be kept up indefinitely. For the last two years iodol, which contains 88 per cent of iodine, or more than three times as much as europhen and more than twice as much as iodoform, has been used in all of Dr. Tyson's cases of consumption at the Rush Hospital, with marked improvement in the various symptoms. This was only temporary in the advanced cases, but in the incipient cases the improvement continued as long as they were under observation. The improvement covered general conditions, strength, weight, cough, expectoration, dyspnea, appetite, and even physical signs, although the last were not as much influenced as some of the advocates of this treatment claim. It may be that the weight and strength improved because digestion was not interfered with, as it is by nauseous and irritating drugs.

To take up the improved symptoms in detail, in some of the incipient cases the cough and expectoration disappeared entirely, while in others they diminished gradually, and much of the discomfort therefrom disappeared. The greatest change in the physical signs was a diminution in intensity in the abnormal breathing sounds. The previously harsh bronchial or bronchovesicular sound became soft, and the expiratory sound seemed to be less marked. Râles that were heard over the affected area seemed to be markedly diminished, and in some cases to disappear altogether. The other physical signs were not altered.

Of the last fifteen cases admitted to the hospital the greatest increase in weight was 20¼ pounds, and the least one pound; even in those which died the weight had increased. The cough had entirely disappeared in four and was markedly diminished in three, in four there was no increase in this symptom, and in the remaining four the cough gradually became worse. The expectoration was diminished in four cases, in five there was no change, and in the remaining six it gradually increased in quantity. The dyspnea entirely disappeared in two, and became gradually less in five, while in the remaining eight it did not abate. Strength and appetite even in the advanced cases improved for a time. There was no marked change in the temperature except in the incipient cases, where there was a tendency to fall.

All the cases were hospital ones. In addition to the iodol inunctions, they received strychnia $\frac{1}{30}$ grain three times a day, with good nourishing food and proper outdoor exercise. The inunctions contained twenty grains to the ounce of olive oil; the quantity rubbed in was a drachm three times a day, increased to half an ounce gradually, say by about a drachm a week. The rubbing is done by the patient himself, and requires about ten minutes to rub in the whole quantity.

It will be seen from the foregoing that there are no reported cures, and that the physical signs were not as much altered as has been claimed. The cases in the incipient stage were kept under observation for some time, but eventually disappeared. The advanced cases ultimately died from the disease, and the far advanced ones died in the hospital.

THE OXYGEN TREATMENT OF SO-CALLED URIC ACID LESIONS.

In the *International Medical Magazine* for January, 1901, CROFTAN tells us that the question of diet in uric acid cases, so-called, resolves itself into a few simple regulations that will be found to correspond essentially with the empiric rules that have stood the test of clinical experience. If the alloxuric bodies are the poison and if their chief source in the body is the nuclein of the white blood-corpuscles, then those articles of food must be interdicted (*a*) that contain alloxuric bases, or "nitrogenous extractives," (*b*) that contain nuclein, (*c*) that are capable of producing a leucocytosis.

Thus all raw, cured, and smoked meats (the red meats of the empirics) contain the extractives and are to be condemned; meat extracts, sauces, soups, are especially unsuited, as they contain the extractives in concentrated form; boiled, stewed, and fried meats, on the other hand, are permissible. The alkaloids of tea are chemically closely related to the alloxuric bases—their use,

therefore, is to be condemned; coffee can do no harm.

All internal organs, as liver, spleen, sweetbreads, kidneys, brains, etc., are rich in nucleins and are consequently bad in form; the yolk of eggs, milk, and a variety of vegetable foods contain nucleins, but they are chemically not of the same kind as those found in animal cells, and are consequently permissible. All alcoholic drinks and malted beverages engender leucocytosis and can do harm; the ingestion of meats in large quantities is followed by a "digestion leucocytosis"—moderation in the use of meats generally is, therefore, indicated in addition to the restrictions as to kinds of meat and method of preparation imposed above. Finally, for causes as yet not understood, the use of all shell-fish and of strawberries is often followed by an aggravation of symptoms.

As all dyspeptic disorders are usually accompanied by fermentative processes, the generation of lactic acid, and a consequent acidulation of the blood—and as we know that such acidulation usually precedes all uratic seizures—a regulation of diet in the sense of preventing gastric disorders is strictly necessary; individual capacity and idiosyncrasies will have to be studied in this sense.

The indications for the use of drugs are twofold, viz.: (*a*) To increase formation and prevent disintegration of red blood-corpuscles and of their chief oxygen carrier, hemoglobin; (*b*) to encourage rapid elimination of the alloxuric toxins.

In order to accomplish the first object a uratic case must be treated essentially on the same principles as one of secondary anemia; iron must be administered; bichloride of mercury in small doses ($\frac{1}{60}$ to $\frac{1}{100}$ grain) and arsenous acid ($\frac{1}{60}$ to $\frac{1}{100}$ grain) are useful. It has been the author's custom to administer inorganic iron, as Quevenne's iron, the carbonate, or a Blaud's pill, separately, in order to bind the sulphuretted hydrogen in the intestine (Bunge). The following routine prescriptions, where nothing contraindicates their use, usually meet all requirements and lead to the goal, viz.: Before eating t. i. d. a capsule or compressed tablet of mercury bichloride 0.0006; reduced iron and bicarbonate of potassium, of each 0.06. If constipation supervenes, cascara can be added to the mixture. The hypophosphites may be used; with the strychnine they contain they act as a general tonic. This treatment is only indicated where the blood examination reveals a decrease in the number of red corpuscles and a deficiency of hemoglobin. When the blood picture is normal, Croftan limits himself to what regulation of function seems necessary, and possibly administers a general tonic. If the patient is one of sufficient intelligence to realize the true character of his ailment, and can understand that diet, good hygiene and oxygen, without medicines, may effect a cure, then it is suggested to dispense with drugs altogether. Such cases are, however, rare, as the great majority of people think that nothing is being done for them unless they swallow a lot of medicine, and confidence in the treatment is necessarily an important adjuvant to success.

In regard to elimination of alloxuric bases by drugs, the following is quoted from a previous publication: "The administration of alkalies in uratic cases produces both an increase in the excretion of uric acid and of alloxuric bases; the quantity of uric acid excreted is of little significance in the sense of our theories; the increase of alloxuric bases excreted is in proportion to the increased diuresis, and we failed to find experimental evidence to show that alkalies exerted a specific solvent action on the alloxuric bases, or in any way favorably modified nuclein catabolism or raised oxygenation. We know, however, that preceding or accompanying any acute exacerbation of uratic symptoms we have an acidulation of the blood (probably due to phosphoric acid, which is an important by-product of nuclein catabolism), and we are inclined to attribute the beneficial effects of alkali therapy to the neutralization or alkalinization of the blood. In the dyspeptic disorders which frequently bring about 'uric-acid attacks,' it probably acts beneficially in the same sense by neutralizing the lactic acid formed in the stomach."

A CASE OF PUERPERAL FEVER TREATED BY ANTISTREPTOCOCCIC SERUM; RECOVERY.

RICHARDSON records in the *British Medical Journal* of January 12, 1901, the following case:

On October 24, 1900, he attended Mrs. B., aged twenty-six years, in her second confinement, which was premature (six months). She complained of excessive pain in the abdomen, although the labor was normal, the placenta coming away without any trouble. At the time there was a very foul discharge, although the child was not in the least decomposed, but showed signs of life. The patient

gave a history of having had a loss a few days previously, which had been followed by the foul discharge. Her temperature at the time of confinement was 103° F., and the pulse 120.

By means of douching with 1-in-2000 perchloride the temperature and pulse became normal by October 28. On the evening of that day Richardson was called to her and found her suffering from severe abdominal pain and great tenderness, with a considerable amount of distention. Morphine and castor oil was ordered, but next day the temperature rose to 102° F., although the very slight amount of discharge had absolutely no odor. The following day the patient's condition became worse; the temperature was 103°. There was very great tenderness of the abdomen, especially on the right side, where an extremely hard mass could be felt, extending from the edge of the liver to the level of the umbilicus. On the morning of October 31 (the temperature being 102.8°, the pulse 130, and the respiration 36) he gave an injection of ten cubic centimeters of antistreptococcic serum (Parke, Davis & Co.). At 3.30 P.M. the temperature was 104° F., and the pulse 130. At this time she was seen by his colleague, who also realized the extreme gravity of her condition.

On November 1, at 8 A.M., the temperature was 101°, the pulse 105. The tenderness was much less. A simple enema was given. As the temperature at midday was 100°, the pulse 100, and the condition generally improved, he decided not to give another injection, but on the morning of November 2 the temperature was 101.5° F., and at midday 102° F. He gave another injection of ten cubic centimeters antistreptococcic serum, and from that date her condition steadily improved, except for a slight rise of temperature on November 9 and 10, which was quickly corrected by a full dose of castor oil.

The injection of antistreptococcic serum was followed by a troublesome attack of urticaria, but with no other bad symptom whatever. Richardson believes that the patient would not have been pulled through if it had not been for the serum.

THE TREATMENT OF INFLUENZA.

The *New York Medical Journal* of January 26, 1901, contains an article by WILLIAM H. THOMSON. He says that when coryza and nasal catarrh are leading symptoms in influenza the peculiarity is often developed of a sudden shifting of the trouble from the nasal passages to the trachea and then back again. In such conditions a pill of a quarter of a grain of extract of belladonna with a grain or two of camphor seems to afford relief. To this should be added a flushing of the throat by a fountain or a Davidson syringe with a quart of hot water in which two teaspoonfuls of potassium chlorate and five drops of oil of peppermint are dissolved. This measure often affords a marked relief by causing a great flow of mucus from both nose and thorax with the return current from the mouth. On the other hand a very troublesome complication occasionally occurs by the supraorbital sinuses becoming involved, with attacks of excruciating pain and often photophobia. It is curious that these pains are very commonly periodical, commencing at a definite time in the forenoon and measurably subsiding at night. The specific for these pains is the fluid extract of ergot, in drachm doses, repeated every three hours if necessary. The addition of a drachm of elixir of cinchona makes it better borne by the stomach. The author published a paper on the use of ergot in periodical neuralgias, not necessarily confined to the head, and in 1890 he stated that he had frequent illustrations of its curative powers in these pains following influenza whose seat was sometimes in the sides of the thorax, in the abdomen, and in the sacrum or pelvis. In each case morphine hypodermically, with large doses of quinine, Warburg's tincture, etc., had been unavailingly prescribed, while the ergot afforded immediate relief.

One accompaniment, or sequel rather, of influenza may be mentioned here, and that is the supervention of a markedly paroxysmal dry cough which has nothing to do with bronchitis, but is evidently of a nervous character, and which may persist for weeks after other symptoms have subsided. It is apt to be especially troublesome at night. It has generally been found to yield to doses of twenty grains of the ammonium bromide with ten of antipyrin.

In no other infection does an intercurrent bronchitis so often become serious as in influenza, particularly in patients past middle life with more or less endarteritis and habitually high-tension pulse. The course of the affection very commonly is that after a week or more of the ordinary catarrhal symptoms the temperature rises rather suddenly from 99° to 102° or 103° F. The cough may then become less frequent, but more severe when it does occur. Insomnia may then be much

complained of, and the physician be disappointed at his morning call by the discouragement of his patient from passing such a bad night. He changes his remedies from day to day only to find each improvement very temporary and a bad relapse follow. After a time disquieting signs of respiratory failure develop, with the constant presence of râles at both bases along with lessening power of expectoration. This condition calls for active treatment, and it is well to note what the chief elements in its production may be. Dr. Thomson believes that the influence of the mechanical factor of unexpelled viscous mucus in the smaller bronchi has been too much overlooked in accounting for the graver symptoms in bronchitis. When we note the inevitable and peculiar pneumonia which follows the plugging of a main bronchus by a foreign body, it seems natural to infer that a like occlusion of the smaller bronchi by tough plugs of secretion will entail a local pneumonia of the same kind in the areas supplied by these bronchi, and it is the supervention of this condition which is marked by the new rise of temperature. This bronchopneumonia, therefore, is not by an extension of the catarrhal process itself from the bronchi to the air lobules, but rather is allied to the serious mechanical pneumonia of occlusion, which, as is well known, disorganizes the delicate structure of the air vesicles and soon implicates the interstitial tissues with consequent frequent caseation of the inflammatory products.

The chief indications for treatment, therefore, would seem to be to liquefy the retained secretions as effectively as possible, and simultaneously to stimulate the function of expectoration. It is remarkable how easily the bronchial tract is sometimes freed from contents which are really fluid, as we often note a copious bronchial hemorrhage got rid of with so little coughing that the patient may be uncertain whether the blood came from the lungs at all. The author notes the striking apparent failure of the preparations of ammonia to subserve this purpose of promoting expectoration when the inflammation has reached the smaller tubes, compared with their apparent benefit in inflammation of the trachea and larger bronchi.

The remedy which Dr. Thomson has advocated for the past twenty-five years for converting a viscid bronchial secretion into a freely flowing liquid is the emulsion of linseed oil. This emulsion is now sold extensively throughout the country as a proprietary article, and during the past year other linseed emulsions have been made and sold as proprietary articles by druggists both in New York and other cities. The writer does not know of any so-called expectorant in bronchitis which equals it, as he has had occasion lately to note in consultation cases of influenza when other remedies for this purpose had been previously fully but vainly tried. He always adds to each dose of the emulsion a twelfth of a grain of morphine and eight grains of chloral, simply because the nervous element of irregular bronchial muscular action is always a hindrance to efficient expectoration in bronchitis.

A NOTE ON THE TREATMENT OF PUERPERAL ECLAMPSIA.

R. P. R. Lyle tells us in the *British Medical Journal* of January 19, 1901, that in his opinion there are three great principles in the treatment of this condition: (1) The purifying of the blood; (2) to control the convulsions; (3) the emptying of the uterus.

Diuretic infusion (hypodermoclysis) is a valuable addition to the usual treatment adopted for purifying the blood (purgatives, enemata, diaphoretics, vapor baths, diuretics, etc.), but it has no immediate effect in controlling the convulsions, nor has it any effect on the action of the uterine muscle.

In order to control the convulsions in eclampsia, it is necessary to allay the irritability of the cerebrospinal system; morphine, chloral, veratrum viride, and chloroform have all been used. Chloroform is undoubtedly bad, as its action is very temporary, and very depressing to the patient; the action of chloral and veratrum viride is more lasting, but they are both cardiac depressants, while morphine judiciously given is quite free from any disadvantage, and has the following advantages:

1. It controls the convulsions by allaying the irritability of the cerebrospinal system.
2. It prevents excess of waste products being thrown into the blood.
3. It does not weaken the patient.
4. It does not injure the child.
5. It has no effect on the kidney.
6. When the patient is under its influence labor often commences, and quickly terminates without causing more convulsions.

At the Rotunda Hospital, of eight consecutive cases of puerperal eclampsia, all of them treated by morphine, only one died. In this case only did the morphine appear to

have no effect, the convulsions continuing frequent and severe, and the temperature rapidly rising to 106.6° F. The liver was very large and extensively diseased.

Now, with reference to the third great principle in the treatment—the emptying of the uterus. As soon as the patient enters the second stage of labor she should be delivered by the forceps, but any mechanical interference (induction of premature labor, mechanical dilatation of the cervix, version, or accouchement forcé) during the first stage of labor is extremely unsuccessful treatment, as is evidenced not only by the statistics (all the maternal deaths having occurred under this heading), but by the experience of many authorities.

Should labor not supervene under the morphine, the morphine will generally control the convulsions for the time being, and the patient, if carefully treated, will probably go on to full term without any recurrence of the symptoms of eclampsia.

SLEEPLESSNESS IN HEART DISEASE AND ITS TREATMENT.

GIBBES states in the *Chemical Journal* of January 16, 1901, that in all cases of heart disease our first treatment should be directed to relieving, if possible, the most urgent symptoms. Sleeplessness, if it is present to any great extent, must always be a serious symptom, and is bound to make itself felt in all cases, being in some a matter of vital importance.

We have therefore to decide when hypnotics are required, and what character of drugs should be given. The ill effect produced from the persistent and unregulated use of sleeping draughts by the general public cannot be too strongly condemned, and it enforces upon us the necessity of using the greatest caution in prescribing them. They should be used either to break the habit of sleeplessness, which the system may have acquired, or to give rest when it is urgently needed. In the former instance the influence should be kept up for three or four nights, or a speedy relapse will follow. In many cases we obtain far better results by giving three or four smaller doses during the day than from a larger amount given in one dose at night; this specially applies to opium, chloretone, and bromide. Our choice of drugs must always depend on the character of the case, and the complications that are present. To describe the various hypnotics that have been recommended would be waste of time; therefore, only those drugs are given which the author has used and found most useful.

Opium and morphine are among our most reliable sleep-producers, and when pain is present are invaluable; they can be safely given in any uncomplicated form of heart disease, and the presence of lung and kidney complications is by no means such a rigid bar to their administration as some would lead us to suppose. Greater care is, of course, required under these circumstances, and their effects must be carefully watched; but they have frequently been used by Dr. Gibbes with the greatest benefit when the lungs have been clogged and a large quantity of albumin present, after having failed to obtain sleep by any other means. If pain is very severe, and immediate results are required, morphine should be given hypodermically, care being taken in extreme cases to minimize the shock of inserting the needle as much as possible. While opium and morphine can always be relied on to relieve pain, they do not necessarily act as hypnotics unless the dose is larger than we may wish to give, for the writer frequently finds their action delayed, the patient not getting to sleep for hours, and sleeping better the second night than the first. Sometimes he can obtain a much better hypnotic result by giving a quarter- or half-grain dose of opium three or four times during the day than two or three grains at night; in other cases one-sixth of a grain of opium every hour for five or six doses during the latter part of the day will produce a more satisfactory result.

Chloral hydrate should only be given when the arterial tension is high, and its depressant action on the heart is beneficial, as is sometimes the case in acute alcoholism. He has not, however, derived any special advantages from its use in other conditions to compensate for its depressing effects.

Chloralamide acts in the same manner as chloral, but has the advantage of being less of a depressant. It has been strongly recommended, but Gibbes has not found its action as speedy as some other hypnotics.

Trional is very useful and acts speedily. It has no special action on the circulation or respiration, and can consequently be given in any form of heart disease, but he has not found it satisfactory when pain is present. Sulphonal acts in the same manner as trional, but as a hypnotic its delayed action is much against it. The combination

of the two in ten- or fifteen-grain doses each has a more satisfactory effect than if they are given separately. If much prostration is present, as is sometimes seen after influenza, it is advisable to avoid their use.

Paraldehyde is a very useful hypnotic. It has no effect on the circulation or respiration, and can be given in any form of heart disease. As, however, it has a slight irritant action on the gastric mucous membrane, it is not always advisable to administer it when the cardiac sleeplessness is complicated by dyspeptic troubles.

Chloretone is one of the most recent additions to our list of hypnotics, and is very useful in heart disease. It has no depressant action on the circulation, can safely be given when kidney or lung complications are present, and is quick in its action; its special usefulness, however, in heart disease is due to the fact that it is not only a perfectly safe hypnotic, but a powerful germicide and anesthetic as well, relieving the dyspeptic symptoms so commonly present by anesthetizing the coats of the stomach, and arresting fermentation. It is a perfectly safe hypnotic, a case having been recorded in which 120 grains was given in twenty-four hours without any serious results. As a hypnotic Dr. Gibbes generally gives 15 grains at bedtime, and repeats the dose in two hours if required; when there is much excitation of the nervous system, he finds 1½ or 2 grains three times a day, with a 15-grain dose at night, has an even more than beneficial effect, and produces sleep the second night without any further dose being given.

The bromide salts are chiefly indicated where the neurotic element predominates, and if given three or four times a day will often relieve sleeplessness; but the writer has frequently found them fail when any one of them is given as a pure hypnotic, in one dose at night.

Alcohol will in many instances promote sleep before heart failure has far advanced, and where restlessness is great; it should, however, only be given in small doses, just as the patient is settling down to sleep. If the arterial tension is very high it is worse than useless, as it may then increase the sleeplessness. In the later stages it may have a soothing but not a hypnotic effect.

BLACKWATER FEVER.

The London *Lancet* of March 23, 1901, contains an article by J. W. W. STEPHENS upon this topic, which is of interest in connection with the leading article which we publish in this issue. In concluding his paper he says that he and his colleague Dr. Christophers regard the evidence based on an analysis of their cases as proving the existence of a malarial infection in such patients, and they regard the conclusion that blackwater fever is essentially a malarial process as irresistible — that is to say, that blackwater fever can rarely, if ever, occur except in a person who is suffering from, or has quite recently suffered from, a malarial attack.

There still remains another side to the question, viz., is quinine the immediate cause of an attack of blackwater fever? Those who have so hastily criticized Koch, and who attribute to Koch opinions not to be found in his writings, do not appear to be acquainted with the fact that it was forty years ago that Tomaselli in Sicily published his first case of quinine intoxication in malaria; that F. Plehn and A. Plehn, in the Cameroons, have published a total of over eighty cases of blackwater fever, and that these observers had, before Koch worked on malaria, arrived at the conclusion that in the vast majority of cases quinine was the determining cause. Very exceptionally they allowed that the action of quinine could be excluded, and Koch has also virtually admitted this, suggesting that insolation even may be responsible for an attack.

There is little to be added to the question. Any one who has read Tomaselli's, Plehn's, and Koch's cases can surely have no doubt that quinine is the immediate cause of blackwater fever. Stephens states that in none of their cases could they exclude its action, and the interval between the administration of quinine and the onset of hemoglobinuria was very constant — *i.e.*, from four to ten hours. He and Christophers, moreover, report one case in a hospital in which quinine appeared definitely to induce a severe attack of hemoglobinuria. It must be admitted, however, that it can be induced by other causes than quinine, for occasionally cases — *e. g.*, by Plehn—are recorded in which it is positively stated that no quinine was taken. While Stephens does not doubt this, he points out how unreliable the statements of patients are, and his notes of many cases show how directly opposed to the facts are the statements of patients on this point. The authority of observers such as Plehn makes us accept the statement. They failed to find a case among

natives; it was quite easy, however, to procure cases of so-called blackwater fever, but these were due to bilharzia hematobia. The state of things may perhaps be best illustrated by the analogy of hematoporphyrinuria. It is agreed that here sulphonal is the commonest cause, yet among those taking sulphonal it is a rare disease; on the other hand, it is not denied that hematoporphyrinuria also occurs among those who have not taken sulphonal.

Stephens records as of worth a series of observations made on the isotonic point of the blood in malaria and blackwater fever. He found that in patients suffering more or less frequently from malaria the isotonic value is constantly raised, while in blackwater fever he found a value below that of normal blood. This low value, it is said, also occurs after loss of blood from various causes. In African natives also he found not uncommonly an isotonic value lower than that observed in any European. The difference was as great as 0.04–0.06 per cent salt. It is possible that the raised isotonic value in malaria may give some indication of the extent to which the corpuscles of the patient have been subjected to injurious influences, and so give some indication of when it is dangerous to give quinine. It is interesting to note in this connection that if to a dog a quantity of toluene-diamin be administered insufficient to produce hemoglobinuria, we have nevertheless in these cases a raised isotonic point—*i.e.*, a lowered resistance of the blood cell (Lapicque et Vast).

Another factor that is of some use as an index of danger is the presence of albuminuria or a high-colored urine. The color in these cases is not due to bile pigment, but may be due to urobilin.

To conclude, blackwater fever is essentially a malarial infection in which quinine is the most common immediate determining cause of intoxication. Protection from malaria will insure protection from blackwater fever. Complete protection from malaria may, as the author's two years' experience in tropical Africa under all kinds of conditions shows, be attained without the taking of any quinine, by paying scrupulous attention to clothing and the use of the mosquito net.

MODERN MEDICAL TREATMENT OF EPILEPSY.

PIERCE CLARK writes rather exhaustively on this topic in the *Medical Record* of January 12, 1901.

In concluding his paper Dr. Clark summarizes the present-day medical treatment by the bromides:

1. By a combination of diet, regular occupation, and personal hygiene, the bromides give the best results in treating idiopathic epilepsy.

2. The bromides, singly or combined, still remain our chief sedative for the epileptic state—in the young epileptic, to secure a possible entire suppression of attacks and ultimate cure of the disease; in the adult an amelioration of frequent paroxysms and comparative physical and mental comfort.

3. The bromides to be effective in chronic and long-standing cases must be given in large daily doses to suppress convulsions, from gr. ccc–cd if necessary. They should be given gradually to find the sedative level, at which level it is the physician's principal duty to maintain them with physical and mental comfort to his patient.

4. Hot and cold baths, high enemas, alimentary antisepsis, and massage are absolutely essential to successful bromide medication.

5. Bromine is a worthy substitute for the bromides in many cases in which the latter are contraindicated or cannot be given in high dosage.

SPINAL COCAINIZATION AND MENTAL SHOCK.

The *Philadelphia Medical Journal* of January 19, 1901, calls attention to the latest pronouncement on the subject of spinal cocainization by Dr. Maurice H. Richardson, of Boston (*Boston Medical and Surgical Journal*, Jan. 10, 1901), and inspired by a visit he made last August to Tuffier's clinic in Paris. The value of Dr. Richardson's judgment on surgical subjects will be disputed by none, and his unusually good opportunity to witness this new method in a clinic where it is used so skilfully gives his judgment all the more interest and importance. Dr. Richardson, in brief, saw two major abdominal operations performed on patients who were lying with almost imperceptible pulses, blanched faces, and perfectly conscious minds. One of these operations was for the removal of two ovarian cysts, and the other for a large renal tumor. The skill with which the operations were performed was brilliant and remarkable, and the impressions made upon the minds of American surgeons present were altogether favorable, so far as the operator and his

technique were concerned; but the impression made on Dr. Richardson's mind by the ghastly and even alarming condition of the patients was distinctly unfavorable to this method of anesthesia. The condition, as described, was not unlike surgical shock. The pulse was almost imperceptible, but not greatly accelerated; the face was blanched, and the patient, perfectly conscious, said repeatedly that she felt no pain. How much of this condition was due to the cocaine, and how much to the overwhelming mental impression, is uncertain, but one is strongly inclined to believe, after reading Dr. Richardson's graphic description, that the state of mental shock, caused by the patient's full consciousness of the horror of the whole surgical procedure, was the vitally important fact. What permanent or even lingering effect this shock may have upon a patient is, of course, as yet a mere speculative subject, and one which surgeons, who usually see little of their patients long after an operation, may not deem important; but we are glad that a surgeon himself, like Dr. Richardson, has recognized this dreadful mental state, and has appreciated it fully and described it accurately. To our mind it furnishes one of the strongest arguments against spinal anesthesia, for we believe that few patients, and especially few women, are so constituted in their nerves that they can lie fully awake and see their abdomens opened and evacuated of tumors, without receiving a mental shock which may be most disastrous in its far-reaching effects.

INVESTIGATION ON THE INFLUENCE OF KALAGUA IN EXPERIMENTAL TUBERCULOSIS.

BERGEY contributes to the *University Medical Magazine* for January, 1901, an experimental study of this drug. He concludes that the effects of the treatment with kalagua seem to have been *nil*. In none of the series of experiments was any positive evidence obtained of the specific action of kalagua. In fact, in Experiment I, animal No. 4, which was inoculated, but received no treatment, lived four weeks longer than the treated animals. In Experiment III, however, one of the treated animals lived three weeks longer than the controls. These results may be attributed, most probably, to individual idiosyncrasies of the animals, or possibly to the size of the dose administered.

If kalagua were the specific in the treatment of tuberculosis, as claimed by Mechtold, it is most probable that some evidence of its specific action would be apparent in experiments upon animals. Even though guinea-pigs are highly susceptible to the tubercular infection, there should be some constant evidence of the specific effect of the drug in the treated animals. The most careful observation of the animals under treatment failed to reveal the slightest effect traceable to the drug. On the contrary, it seemed as though the untreated animals, as a rule, were the more thrifty, and the progressive loss in weight was less marked than in the treated animals.

CONCLUSIONS FORMED AFTER SIX YEARS' EXPERIENCE WITH THE ANTITOXIN TREATMENT OF DIPHTHERIA.

In the *Medical News* of January 19, 1901, KOESTER in concluding a paper on this topic says in passing from the consideration of the simple antitoxin treatment, and giving attention to the question of whether it is necessary to use any other treatment in connection with it, it may be stated that this must be determined by circumstances. Antitoxin is a specific in diphtheria, and when the disease is mild or in its earliest stage, the membrane thin and not covering a large surface, it is not necessary to do more than give one injection, depending on the antitoxin to cure the disease. When, however, the disease has made more progress and a putrefaction change has occurred, accompanied by foul-smelling discharges, it will then be well to employ some measure to destroy the odor and keep the parts sweet and clean. For this purpose Dr. Koester employs a neutral preparation of peroxide of hydrogen mixed with double or three times its volume of water. He has also used a saturated solution of boracic acid, or a normal salt solution; but it is his belief that the best results are obtained with peroxide. These solutions should not be sprayed in the throat, but should be thrown in with a long-nozzled, hard-rubber syringe holding an ounce, after depressing the tongue with some force against the pharynx, so that the liquid washes not only the tonsils, but the pharynx and posterior nares as well. This should be repeated every hour or two. It is very important that these solutions should be neutral. Some of the preparations of the peroxide of hydrogen are acid and will crack the mucous membranes of the lips and mouth. This is very distressing

to the patient and interferes with the ease with which these washings can be made, and also with the taking of proper nourishment.

In nasal diphtheria the nose should be irrigated, preferably with a saturated solution of boracic acid. On the first day of the disease this irrigation, which should be done every three or four hours, without force, perhaps with a fountain syringe, is for the sole purpose of keeping the parts clean; but after the second or third day, when the membrane begins to exfoliate, an occasional more forcible injection with a ball nasal douche will often detach membrane which was perhaps only partly separated. The writer has frequently been able, in this way, to detach large masses of membrane, sometimes clearing out both nostrils and the posterior nares with one of these forcible injections. By removing these membranes it is made possible for the patient to close the mouth and breathe through the nose. Care should be taken that nothing is forced into the Eustachian tube; this is avoided by instructing the patient to keep the mouth open. When, because of the youth of the patient, this cannot be accomplished by instruction, a gag of some kind should be placed between the teeth and the mouth kept open during the douching. But should the liquid be forced into the Eustachian tube, which is not likely to occur as the swollen mucous membrane will tend to prevent it, even this would be preferable to having the foul, putrefying mass retained and the patient poisoned thereby, besides polluting the atmosphere and making the danger of infection greater to the attendants and other members of the family.

This is all that need be done in the way of local treatment; the administration of astringent or cauterizing agents cannot be too strongly condemned. The internal treatment is very simple, and consists in the administration of strychnine in essence of pepsin, or some other vehicle. This is given simply as a cardiac tonic and to aid digestion. The tincture of the chloride of iron and chlorate of potash are to be condemned, as they tend to derange the stomach, and cannot in any way be productive of anything but harm. Alcoholic stimulants are indicated in only very severe cases.

The after-treatment consists in administering remedies directed toward hastening convalescence—such as tonics, preferably syrup of the iodide of iron.

The feeding is most important, and as the appetite is generally not good, the author has come to believe that the best results can be accomplished by catering to the patient's fancy. Frequently the proper nutrition has been afforded by feeding a child on ice cream. Whatever beef extracts, liquid peptonoids, milk, or other foods are used, what is desired is to sustain by proper nutrition, until such time as the disease ends, and the normal appetite returns. To accomplish this purpose every practitioner of experience will have his own methods.

In feeding intubated cases, as the toxemia is not apt to be so great, either because the membrane is not so extensive or the larynx does not absorb the poison rapidly, it is the writer's custom to give internally nothing but water for twenty-four hours. This is done because of the danger of occluding the tube with particles of food or curds of milk; besides which the mouth is kept cleaner. After twenty-four hours, when the child has become accustomed to the tube, ice cream, condensed milk, and thick gruels are given. One must use his own judgment in the matter of feeding. Some children are averse to taking nourishment of any kind, but if patient search is made, some one thing will be found that the child will take with pleasure. More than one case is recalled in which, after intubation, children have lived several days on beer, taking it with avidity and rejecting everything else. Beer is not especially recommended as an article of diet for children with diphtheria, but is simply mentioned to show how sometimes the unthought-of thing will serve the purpose in an emergency. When children refuse everything, feeding through the nose is preferable to rectal alimentation.

THE TREATMENT OF HYPERACIDITY OF THE STOMACH.

The *Journal des Praticiens* of December 15, 1900, contains an article by LINOSSIER, of Paris, on the treatment of this condition. In its typical forms it is dependent upon an excessive secretion of hydrochloric acid in the gastric juice. Several theories have been advanced as to the causation of this. One is that there is an abnormal excitation of the secretory nerves, thereby indirectly resulting in an excessive secretion of acid. The other theory of Hayem is that there is a multiplication and hypertrophy of the glands, so that they are capable of secreting more acid than normal. There is a third theory that frequently there is delay in the evacuation of the stomach contents into the intestine, and

that the presence of food remaining in the stomach for a long time causes this organ to secrete more juice than is natural. On the other hand, there have been certain authorities who have claimed that the delay of food in the stomach resulted not only in hyperchlorhydria, but actually in retarding the secretion of gastric juice. Probably both conditions occur in different patients. In those who have dilatation with feebleness of the stomach wall, in all probability the delay in passing food into the intestine does result in too little gastric juice being secreted; whereas, in other instances, it may act, as has just been stated, as a stimulation to secretion. Undoubtedly certain cases of partial stenosis of the pylorus produce this condition.

Still another theory has been that by reason of hyperesthesia in the gastric mucous membrane an excessive secretion takes place as soon as the food enters the stomach. The treatment of the condition depends to a certain extent upon the cause, but there are certain general rules which should govern it. In the first place, manifestations of pain should be modified; the secretion of gastric juice should be decreased; we should endeavor to facilitate the evacuation of the stomach into the intestine; and finally diminish hyperesthesia of the mucous membrane.

For the pain which accompanies hyperchlorhydria, various analgesics have been suggested, of which, naturally, opium and bicarbonate of sodium have been most frequently employed. Of course, the difficulty with this method of treatment, so far as the opium is concerned, is that it may establish the habit, and on the other hand, enormous doses of bicarbonate of sodium have to be used before the pain disappears. A useful prescription for the treatment of these cases is as follows:

> Bicarbonate of sodium, 6 drachms;
> Calcined magnesia, 1 drachm;
> Subnitrate of bismuth, 30 grains.

A small spoonful of this powder may be taken as soon as any distress occurs, and repeated every half-hour or hour during the progress of digestion, if need be.

A number of medicaments are employed for the purpose of controlling gastric secretion, of which without doubt atropine is the most powerful. Ten drops of the following solution may be taken half an hour before meals:

> Distilled water, 2 ounces;
> Sulphate of atropine, 1-20 grain.

If necessary, this can be given by the hypodermic needle, but usually it is best taken by the mouth. Where the condition is very persistent and the pain very great, larger doses of the atropine can be used.

Robin finds that he is able to check the secretion with veratrum viride.

For the purpose of aiding in the passage of food into the intestine, antispasmodics can be given, if we have reason to believe that it is delayed in its passage by spasm of the pylorus. Belladonna, opium, and bicarbonate of sodium by relieving acidity may, to a certain extent, relieve the spasm, and sometimes much relief will be found from drinking a cupful of hot water; or, again, by administering half an hour before meals a coffeecupful of sweet oil, which seems to facilitate the gastric movements.

Where it is believed that the stenosis is not spasmodic but organic, surgical intervention is of course necessary.

In cases where hyperesthesia and excessive tenderness exist, a combination of belladonna and opium is often advisable, equal parts of laudanum and tincture of belladonna being given, the endeavor being made to give a sufficient quantity of them to control secretion without large doses, and thus produce general physiological effects.

THE TREATMENT OF GASTRIC ULCER BY LAVAGE WITH PERCHLORIDE OF IRON.

BOURGET, one of the professors in the Faculty of Medicine at Lausanne, has suggested that this drug should be used as a wash in the treatment of gastric ulcer. His paper is called attention to by Romme in *La Presse Médicale* of December 16, 1900. He thinks that this method of treatment aids in the cicatrization of the ulcer and the arrest of any tendency to hemorrhage, and quotes one patient who received lavage of the stomach with a solution of perchloride of iron in the strength of two per cent, to which had been added in addition chlorate of potash in the strength of one-half or one per cent. This treatment is said to distinctly diminish the pain also. In all treatments Bourget administers large quantities of bicarbonate of sodium, if he finds that small doses do not produce the necessary decrease in acidity. In other instances he finds it wise to wash the stomach with a three-per-cent solution of bicarbonate of sodium three or four times a day three or four hours after meals.

COFFEE AS A BEVERAGE, AND ITS FREQUENT DELETERIOUS EFFECTS UPON THE NERVOUS SYSTEM; ACUTE AND CHRONIC COFFEE POISONING.

LESZYNSKY, a well known neurologist of New York, states in the *Medical Record* of January 12, 1901, that coffee often produces great functional nervous disturbance that requires treatment.

In the treatment of patients Dr. Leszynsky does not recommend in every case immediate and total abstinence. As a general rule, their allowance should at once be limited to one cup of coffee in the morning. If necessary, its strength should be gradually reduced or its use absolutely prohibited. The customary stimulant being suddenly withdrawn, if careful instructions are not given, the patient will soon find a substitute in tea or cocoa, or possibly alcohol. An infusion of cocoa-nibs in moderate quantity frequently proves acceptable in place of coffee. There are many preparations on the market under various names, and generally advertised as "substitutes for coffee." They are known to contain parched corn, peas, beans, and corn-cobs, as well as sweet potatoes cut into small pieces, dried and parched. Chicory is commonly used mixed with true coffee. The manufacturers of more recently vaunted substitutes claim that their special preparations are made of cereals. Dr. Leszynsky has long since refrained from recommending any of them, as their continued use soon leads to disturbance of digestion. While cocoa possesses considerable nutritive value, its principal alkaloid is theobromine, which is almost identical with caffeine in its chemical and physiological effects. With but slight qualifications, the same may be said of tea and its alkaloid theine. Hence the use of cocoa and tea must also be restricted or forbidden. Suitable hydriatic treatment, and careful attention to the diet and excretions, should be systematically carried out. In some cases it may be necessary to institute a "rest cure."

As a sedative to the nervous system, and also temporarily to replace the accustomed stimulation, Dr. Leszynsky, in his routine practice, prescribes the following mixture to be taken in water three times a day: Sodium bromide, gr. xv; liq. potass. arsenit., ℥ ij; tinct. gentian. comp., ʒ ss; ext. kola fid., ℥ xv. At the end of five or six weeks the bromide, etc., should be discontinued, and tonic pills containing arsenic, quinine, and strychnine, or some similar combination, taken daily for several months. Under the foregoing plan of treatment, faithfully followed, most of these patients will completely recover within three to six months.

NOTES ON THE THERAPEUTIC USES OF HOT AIR.

The *Montreal Medical Journal* for December, 1901, has in it a note by MARTIN and GILLIES on this topic. As they well say, with the therapeutic nihilism which is nowadays so common and withal so refreshing, in even great medical centers, new treatments are disregarded almost as rapidly as suggested. It may be true that the majority of new drugs are of greater benefit to the merchant than to the patient, and so too of many appliances that are calculated to impose on the credulity of the physician and the experimentalist. Inquiry as to the extent to which hot air has been used reveals the somewhat surprising fact that it, too, as a method of treatment is in danger of suffering a similar fate, not so much from its inefficiency, but largely for the reason that its results were not equal to the exaggerated expectations.

The method of treatment by hot air has been adopted now for some years, though never with such *éclat* as when, in 1894, there was introduced into England a new machine, by means of which air heated up to 300° or 400° F. could be directly applied to almost any part of the body with impunity.

Briefly, the apparatus consists of a copper cylinder sufficiently large to admit an extremity, the pelvis, or the whole trunk. A special arrangement of valves allows for the free circulation of air, while a thermometer, placed through the top, registers the temperature of the air within. The part to be treated, being well wrapped in flannel, is placed in the cylinder upon an asbestos cushion, and rubber sheeting (attached externally about the opening of the cylinder) is drawn and tied tightly about the limb.

The temperature of the bath, at first about 180° to 200° F., is gradually raised until within fifteen minutes it has reached 240° to 260° F., and then rapidly to 280° or 300° F. or more, till the termination of the individual treatment. The duration of the bath varies according to the condition of the patient and the stage in the treatment of the malady; as a rule the baths are administered on consecutive or alternate days. During the bath the patient is encouraged to drink water freely,

and at the end, wrapped up in a blanket, he is wheeled back to his bed, where he remains for two or three hours. Minor variations in the method occur in various institutions, the general principles, however, being the same.

Once introduced, the treatment was found to create temporary benefit in rendering stiffened joints of arthritis deformans more supple, and in enabling bedridden patients to walk more easily than they had done for months or even years. But the effect did not prove lasting, nor was the improvement progressive. Joints remained more supple up to a certain limited extent, but with the prolonged cessation of treatment, as a rule, the joints returned to their former condition. Such, at all events, was the treatment in arthritis deformans, and in many cases of aggravated chronic rheumatism, though where any pains existed or acute symptoms manifested themselves, the relief was rapid and pronounced. That, however, the method had a curative value, not even the most sanguine had reason for hoping, and it was from a false estimate of its value that the application of hot air received in many places its quietus. H. C. Wood, it is true, found many cases of arthritis deformans were rendered worse by treatment. Yet in this and in other severe chronic affections isolated cases have been recorded where the benefit was pronounced. It is more, however, in painful effusions, and in acute and subacute conditions, that the improvement is most interesting to note, being more rapid and complete than by the various other means adopted, most of which act with painful tardiness.

Recalling, for example, the early cases in Montreal, already reported by Dr. James Stewart, we see the effects on the course of subacute and more or less chronic cases of gonorrheal arthritis especially. Cases of several months' duration were not only relieved of the pain incident to those inflammatory conditions, but the mobility was increased, and walking (when the knee was affected) was rendered more quickly possible than by any other means we have adopted. Where much pain was present, the relief was almost immediate upon the first treatment, and pains which recurred after twenty-four hours were again quickly dispelled by the second bath, and finally quite disappeared.

In advanced cases, of course, a remaining stiffness was bound to exist; but even where no satisfaction was obtained, there was never any evil effects observed, and the contraindications to the treatment are apparently so few as scarcely to be taken into account. Possibly, sufficient stress had not been laid on the fact that the treatment in such cases is purely symptomatic, and any action on the specific cause of the disease is of course out of the question. Not only does hot air not affect the growth of gonococci or tubercle bacilli in joints, but its effect on the general metabolism is extremely slight. The nitrogen elimination is not apparently altered, at all events certainly not increased, the action of hot air being evidently a purely local one.

Nor is it only in the treatment of painful joint affections that hot air has been found eminently useful. The pain due to peripheral neuritis and local neuralgias was relieved with astonishing rapidity, while the affection itself seemed to terminate on an average more speedily than by any other method they have adopted. During the past four years some thirty-four cases of sciatica were treated at the Royal Victoria Hospital, five of these with the ordinary methods, and without hot air being applied. Of these, three were unaffected by the applications used, and showed no improvement. The remaining twenty-nine were treated by hot air and were rapidly relieved. Fourteen were completely cured, leaving the hospital well, after an average duration of three weeks, though among them were cases which had lasted months, and in one case treatment had been continued for more than a year.

The other thirteen showed marked improvement, though not a complete cure. The pain was relieved on discharge, though slight tenderness to pressure remained, or in some few instances, slight lameness. Such cases, however, had been much more protracted, the average duration of these thirteen being five months. The relief by hot air was particularly striking in one instance, that of a young Frenchman who had suffered for some months, and on admission was given the usual treatment by blistering and other forms of counter-irritation, and the leg finally fixed in a splint. All this seemed to have no avail in relieving pain or disability, and he was placed on hot-air baths. Almost immediately he was relieved of pain, and within a few days was able to leave the hospital quite well.

There would seem to be no necessary relation between a protracted case and the rapidity of the cure, inasmuch as where there was in some instances a previously long duration, the cure was rapid, more so than in many

others which had lasted a shorter time. As a rule, however, the more protracted the case the greater is the number of baths required.

In the two cases of sciatica remaining in the series, absolutely no result was obtained, and they were referred to the surgeons for stretching. Such treatment likewise proved ineffectual, and they left the hospital unrelieved.

What particularly directs one to the hot-air treatment in sciatica is the rapid relief of pain, a relief which persists and enables the patient, while taking the necessary rest in bed, to enjoy comfort and freedom from suffering. Neither blisters, fomentations, nor any other form of local application have been, in the author's experience, attended with like satisfactory results.

SOME POINTS IN THE TREATMENT OF CHRONIC HEART DISEASE.

The *Clinical Journal* of January 2, 1901, has in it an article by LONG upon this theme. He thinks that in our methods of treatment we are liable to concentrate our attention too much on the heart itself, and to ignore certain other symptoms which are of the utmost significance. If ascites is present in great quantity, Dr. Long advocates early tapping in most cases. He says he is fully alive to the fact that we have powerful diuretics at our disposal in the shape of caffeine, digitalin, etc., to effect this purpose; but it often happens that we do not care to administer these in sufficient doses to produce the desired result, unless the patient is under constant supervision. Meanwhile all the abdominal organs are suffering, whereas a timely paracentesis gives immediate relief, and by subsequent dietetic and medicinal treatment we can often postpone indefinitely the reaccumulation of fluid.

Wet and dry cupping, and the application of leeches to the bases of the lungs, is a method of practice which is gradually coming into vogue again, and he believes has much more to recommend it in these cases, and in certain allied conditions, than the practice of applying poultices, which only tend to draw more blood to the already engorged lungs.

One of the most valuable therapeutic remedies we have at our disposal in the treatment of chronic valvular disease is rest, though Dr. Long fears we are sometimes led to rather neglect its value in our anxiety to meet the wishes of our patient. When we remember that the number of beats per minute is about ten less in the reclining than in the upright position, it is easily seen what an enormous saving of labor is effected for the heart during the twenty-four hours by acting upon this principle. Dr. Long states that he has recently had under his care a boy with bad mitral incompetence, with a greatly displaced apex-beating owing to ventral dilatation, whom he kept in bed for over two months, merely treating him the while on general principles, and it is surprising what benefit he has gained as a result. Whereas formerly he suffered a great deal from precordial pain and dyspnea on the slightest exertion, he can now walk about and enjoy life, never conscious of the fact that he has a heart. Without unduly frightening the patient who has chronic valvular disease, it is our duty, he believes, to impress upon him the fact that he has henceforth to live down to his heart, and that if he will only constantly bear this in mind we can, in many cases, justly hold out to him a reasonable span of life.

Having once brought about a condition of compensation, our next endeavor should be to try and keep it sustained. Toward this end a careful supervision and regulation of the daily exercise is of prime importance. Walking, cycling, and even horse exercise, are all allowable if not abused. Golf may be countenanced in a few selected cases only, for, speaking generally, the muscular effort required for the "drive" in this game is liable to produce a sudden, and perhaps fatal, syncope. The patient should always be warned to cease from his exertion immediately he has the slightest distress in breathing, or feels any precordial pain or "stitch" in the side. Light dumb-bell exercise with bells one-half to one pound in weight is a most useful form of exercise for such patients; and better still are the graduated elastic exercises which can be obtained with the "Sandow" or other similar apparatus. Tonic doses—that is to say, three to four minims—of the tincture of digitalis and strophanthus, combined perhaps with a few minims of the tincture of nux vomica, may often be taken with great benefit for several weeks on end. Flatulence, often a very troublesome symptom, is best controlled by a careful dietary, and by the administration of creosote or carbolic acid in perles after meals. The alvine secretions should receive very careful consideration, and an occasional

five-grain "blue pill" usually gives more satisfaction in this matter than does any form of aperient.

In the treatment of aortic disease, pure and simple, pain and mental anxiety are often the most prominent symptoms we have to deal with. For the one, iodides and nitrites give the most relief; for the other, opium may be quite legitimately given, and often with great benefit. Putting aside all theoretical considerations, the writer says he has never yet satisfied himself clinically that digitalis, or one of the allied group of drugs, is of benefit in this form of valvular disease, but rather prefers mercury, and that in the form of "blue pill."

The most unsatisfactory form of chronic heart disease to treat is that associated with stenosis of the mitral valve. Such cases are most frequently seen in children and young adults, and in females more often than in males for some unexplained reason. It is the exception rather than the rule for a child with mitral stenosis to reach adult life, and even if she should reach maturity, she is usually of stunted growth and ill-developed. There is much to be said in favor of the congenital theory of this form of heart disease in young people. It is surprising how very constricted the mitral orifice may become before death or any very pronounced symptoms appear. Dr. Long made a post-mortem examination upon a woman whose mitral orifice would barely admit a penholder. Yet two minutes before her death she was sitting up in bed quite comfortable and free from all distress; and without any exertion other than raising a drinking-cup to her lips she suddenly fell back, never to regain consciousness. These cases do not respond to the cardiac tonics in the same satisfactory manner as do the cases of mitral insufficiency, and when we consider the nature of the lesion, this is in part explained. Cases of this kind, when seen for the first time, can often be diagnosed at sight by the intense lividity of the face and extremities; and instead of a feeble, irregular, frequent pulse, we find a small pulse of regular rhythm, and with a frequency, perhaps, of not more than 90 to 100 per minute. Yet such cases are usually of far more gravity than are the cases of mitral incompetency with a large amount of edema, and an almost uncountable pulse. These cases of mitral stenosis usually exhibit signs and symptoms of considerable right-sided dilatation, and this we must try to relieve by some form of bloodletting. Dr. Long believes that he has on more than one occasion saved such a patient from immediate death by the timely application of a dozen leeches to the precordium.

The treatment of chronic valvular disease in the young is not nearly so satisfactory as in those who have reached adult life. In the first place we have to remember that injured valves do not grow as do healthy valves; and in the second place we must bear in mind that although the heart has reached its normal maximum growth at the age of eighteen or nineteen years, yet in most cases the rest of the body continues to develop for several years longer. The effect of any very prolonged or severe physical exertion at this time of life, as is occasionally imposed upon soldiers, or voluntarily indulged in by cyclists or other young athletes, is at all times liable to be followed by serious consequences, and *a fortiori* in those already the subjects of valvular disease. The so-called cardiac tonics, again, do not produce their characteristic effects so markedly in children as in adults, and with each succeeding year of life more work is thrown upon the organ owing to the growth of the rest of the body; and we find, as a matter of experience, that only a small percentage of children who have chronic valvular disease ever reach maturity.

Most chronic valvular affections are the sequel of some antecedent attack of acute endocarditis, of which rheumatism is by far the most common cause; and in prescribing a line of treatment for any particular case, we have always to bear in mind that a fresh exacerbation of rheumatic endocarditis, unassociated perhaps with any fresh joint trouble, and causing a slight rise in temperature only, is possibly the cause of the patient seeking further advice. The administration of such powerful drugs as digitalis or strophanthus in such a case would be most strongly contraindicated, for to excite an already inflamed organ to increased activity of action is a contravention of all known laws based upon pathology; but rather would we treat such a case with absolute rest and a course of the salicylates. Take the case, again, of a man with chronic valvular disease, who for years has lived free from any symptoms referable to his heart. The time at length comes when he suffers from precordial pain and dyspnea, indicative probably only of the abuse of alcohol and tobacco.

DISINFECTION OF TYPHOID URINE.

In the *Philadelphia Medical Journal* of January 12, 1901, GWYN concludes a paper on this subject as follows:

1. For disinfection immediately and within five minutes, a volume of infected urine would require

½ its vol. of 1:20 carbolic acid solution.
½ " " 1:40 " " "
½ " " 1:1000 $HgCl_2$ solution.
1/10 " " 10 per cent formalin.
—1/10 " " chlorinated lime solution.
½ " " liquid chlorides.

2. For disinfection within five to fifteen minutes, a volume of urine would require

½ its vol. of 1:20 carbolic acid solution.
½ " " 1:40 " " "
1/10 to 1/10 its vol. of 1:1000 $HgCl_2$ solution.
½ its vol. of 1 per cent formalin.
½ " " 5 " "
½ " " 10 " "
—1/10 " " chlorinated lime solution.
1/10 " " liquid chlorides.

3. For disinfection within one-half to one hour, a volume of urine would require

1/10 to 1/10 its vol. of 1:20 carbolic acid solution.
½ " 1:40 " " "
An equal " 1:100 " " "
1/10 " 1:1000 $HgCl_2$ " "
1/10 " 1:2000 " "
1/10 " 10 per cent formalin.
1/10 " 5 " "
½ " 1 " "
1/10 " liquid chlorides

4. For disinfection within one to two hours, a volume of urine would require

1/10 to 1/10 its vol. of 1:20 carbolic acid solution.
½ to ½ " " 1:40 " " "
More than " " 1:100 " " "
1/10 to 1/10 " " 1:1000 $HgCl_2$.
—1/10 " " 10 per cent formalin.
—1/10 " " 5 " "
—½ " " 1 " "
An equal vol. = ½ its vol. of milk of lime solution.

5. For disinfection within two to four hours, a volume of urine would require

½ its vol. of 1:20 carbolic acid solution.
1/10 to 1/10 its vol. of 1:40 carbolic acid solution.
An equal vol. of 1:40,000 or 50,000 $HgCl_2$ solution.
" " = ½ its vol. milk of lime solution.

The disinfection of the urine in the bladder and urinary system has been referred to in previous articles, urotropin being the only substance which can claim any direct action when administered by the mouth. As an irrigation, bichloride solutions 1:100,000 to 1:50,000 have, in Gwyn's experience, been very successful, removing the bacilli with much more certainty than any other method.

THE EFFECTS OF RHEUMATIC FEVER ON THE HEART.

In the *Practitioner* for January, 1901, GIBSON states that in this disorder the first and most important method of treatment, with a view to obviate rheumatic implication of the heart, is to enjoin rest in the highest degree available. It is clearly impossible to insure absolute rest, however, to the pericardium, the endocardium, or the myocardium, seeing that the heart works steadily day and night; nevertheless, by securing complete bodily rest, the amount of work which the heart is compelled to perform is reduced to a minimum. By the absence of all muscular exertion both the force and the frequency of the action of the heart may be greatly reduced. In this way the friction between the inflamed pericardial surfaces, the shock of the closure of the valvular cusps, and the strain upon the muscular fibers, may be enormously reduced. From the first moment, therefore, of an attack of acute rheumatism until some days after every symptom has finally disappeared, the patient should be compelled to retain a horizontal position.

Closely related to the question of rest is that of diet. While sufficiently nutritive to supply the demands of the diminished tissue changes which occur during rest, it should be of such a nature as not to produce very stimulating effects, or to introduce into the system too much animal proteid material. It must, moreover, contain abundance of fluid, so as to bathe the tissues thoroughly. During the earlier periods of acute rheumatism the best form of diet is accordingly composed mostly of milk. But, as time goes on, the nature of the diet may be judiciously extended by the introduction of soups, farinaceous foods, and the lighter forms of flesh.

With regard to the question of drugs, the specific remedies for acute rheumatism will naturally be in operation from the earliest moment. We are, at present, unable to answer the question whether salicin and its allies in themselves have any influence in lessening the tendency to cardiac implication. The results of statistics, unless spread over a lengthy period, and distributed over a wide field, are apt to be fallacious. There appears, however, to be good ground for the belief that the salicyl series of drugs considerably diminishes the cardiac effects of rheumatism. These drugs must be continued in full doses until every symptom has disappeared — until the pulse and temperature have become normal, and every appear-

ance of joint affection has subsided. After that state of matters has been reached, it is well to continue the specific remedies for some time. When all the general symptoms have disappeared for a few days, absorbents may be begun. Of these, the one which seems to Gibson most satisfactory is iodide of sodium. It may be continued for some weeks, giving from ten to fifteen grains three times a day. If there should be any appearance of anemia, the iodide of sodium may be combined with iodide of iron, or, at the same time, some iron preparation may be administered with vegetable tonics. During all this period no remedy that can stimulate the heart—such as digitalis or strophanthus—should be administered, the whole aim being to maintain the heart's action at a low level. After the disappearance, however, of every symptom, general or local, the employment of the cardiac tonics may be commenced. Throughout the whole course of the disease an occasional mercurial aperient should be administered every few days.

One other method of treatment remains for consideration, and one which, notwithstanding the recent expression of opinion by Mitchell Bruce, seems to be of the highest value. This is counter-irritation. There are many difficulties in attempting to explain how counter-irritation can influence the course of disease in internal organs, but we may assume that the effect of the external stimulus causes some contraction of the afferent vessels, as suggested by Lauder Brunton. This, no doubt, explains the action of counter-irritation as regards the pericardium and myocardium. It is much more difficult to give any rational theory to account for its effects on certain parts of the endocardium. Some such reasoning, doubtless, is applicable to the endocardium covering the mitral cusps, in which blood-vessels are present. But it is not applicable to that of the aortic cusps, seeing that in them there are no blood-vessels, unless there has been some previous lesion leading to vascularization. This may be the reason why it is so much more difficult to control aortic than mitral endocarditis. For a good many years it has been the author's custom to employ counter-irritation about the precordia in every case of acute rheumatism, and the results have been eminently satisfactory. The method has consisted in the application of small fly-blisters every night, or every second night, over the precordia and their neighborhoods, and he agrees most thoroughly with Caton as regards their utility. It is a pleasure, as it seems a duty, to accord to this author a hearty expression of appreciation of his labors.

Such are the means by which nature's processes, as regards the heart in acute rheumatism, may be modified and controlled. To do this successfully demands great patience on the part of physician, nurse, and patient. A case of the disease at present in the ward of Dr. Gibson furnishes an excellent example of this fact.

SOME SUGGESTIONS IN USING BROMIDES IN EPILEPSY.

The *Buffalo Medical and Surgical Journal* for February, 1901, has in its pages an article by CLARK, in which he says that epileptics and their relatives expect physicians to give medicines at once which will lessen the frequency and severity of the spasms; therefore too little attention is generally given in the beginning to a careful study of the digestive tract and its tolerance of the bromides. If the patients are anemic and have the epileptic physique or dyscrasia, we must try to build up the organism while administering bromides. The author almost always gives iron tonics and cod-liver oil to epileptics, either to correct existing malnutrition or forestall the effects of the bromides. He considers this adjuvant treatment as important to the bromides as the diet and the general living regimen. The bromides may be given at once. He is persuaded that the following well known formula is the best:

ELIXIR OF THE TRIPLE BROMIDES.

℞ Potass. bromid.,
Ammon. bromid.,
Sodii bromid., āā gr. v;
Elixir simplex, q. s. ad ʒ j.

M.

This preparation is given because it is palatable and contains the dynamical effect of fifteen grains of bromide to the drachm, an easy and convenient unit to work upon in further bromide treatment. The patient is begun on one drachm a day at the outset, given night or morning, according to whichever end of the day the seizures occur most frequently. This is kept up for a week or so, until the sedative power of the single dose can be determined, and then successive drachms are added as thought necessary, until the seizures cease, or 480 grains or one ounce of the salts is taken. The giving of bromides of late has been in too small doses to gain antispasmodic effect; the amount

should be sufficient to stop the seizures. The same care and attention should be exercised in giving bromides in the different cases as if we were handling a new drug each time.

Every possible precaution in the prevention of bromide intoxication must be taken. The epileptic organism must be kept in the highest possible functionating state. Hot and cold baths, massage, and electricity should be given. If the patient has a good physique, a prolonged hot bath is ordered twice each week on retiring, and a cold shower bath and a friction rub every morning on rising. If the patients cannot stand the shock, a cup of coffee or hot milk is given them in bed before the bath, and if the shock is still too severe they should lie down until the reaction takes place; a hot drink after a cold bath materially aids the rapid reaction. No alcoholic stimulants, as a rule, should be allowed in connection with these cold shocks. Put just as little dependence on hot drinks as possible, and insist upon neurotic patients themselves making efforts to favor the reaction. These cold baths in the morning are regarded as vital to maintenance of a good peripheral circulation, to physiological awakening of the organic tissues.

The bowels must he watched, the diet must be prescribed; high rectal saline douches should be given once or twice each week. The mouth must be kept scrupulously clean. Internal antiseptics should be given at stated intervals, and if the face shows the effects of the bromide intoxication, cloths wrung out of hot water may be applied to the face to relax the tissues and aid the circulation in taking up the bromide deposits. This skin treatment should be followed nightly for fifteen to twenty minutes, the last moist heat application should be a hot saturated solution of boracic acid, and a final application of zinc ointment should end each night's treatment to the face. In the author's experience he has never seen a case of acute or chronic bromism of the skin which would not to a great extent yield to this treatment, when the other factors in bodily hygiene were faithfully looked after. It is absurd to look to Fowler's solution of arsenic to remove bromide intoxication when the care of administering bromide is neglected.

Having stopped the seizures by large doses of bromide, the work of treating the epilepsy has only begun. The dosage must be maintained for as long a time as possible without intoxication. Only so much bromide is effective as the tissues will absorb and hold; the longer time the greater amount they can be made to maintain the better. Not infrequently the patient is left to himself at this stage of bromide treatment, and he soon disregards the laws of hygiene, and bromide intoxication follows swiftly. The seizures occur more frequently than before, and the patient's life is saved by some physician withdrawing the bromides. Cases in which the care of administering bromides is neglected form no small part of those said to stand the bromides poorly. Epileptics taking bromides in large doses should be under the careful supervision of some competent person, and be seen by a physician at frequent intervals. While establishing the dosage for any particular case, the physician should see the patient two or three times each week; every day is better. After the individual regimen is established thoroughly, the patient may go two or three months without a consultation. Not infrequently after the bromide dosage has been adjusted to the seizure level, epileptics will suddenly surprise the physician by having two or three seizures just as the active or second phase of treatment is begun. The explanation is simply this: the patient, from being a passive agent, from living a sedentary life, is started on an active out-of-door life for the establishment of a real or permanent cure if possible. The patient's bodily activity increases and hastens the elimination of the bromide salts, and the seizures recur. Add fifteen to thirty grains to the dose in changing the patient from a sedentary to an active out-of-door life.

Of late when cases would not stand the bromide salts in high dosage, bromide was given in the following simple formula:

TEN-PER-CENT BROMINE.

℞ Ol. sesamum, f ʒ ix;
Bromine, pure, ʒ j.

M. S.: A tablespoonful night and morning; increase as directed.

Or in this emulsion, which has been found both more highly nutritive and sedative:

EMULSION OF BROMINE.

℞ Ol. sesamum, f ʒ viij;
Gum. acacia gran., ʒ ij;
Syr. simplex, f ʒ ij;
Ol. gaultheria, ♏ lx;
Aquæ destillat., f ʒ vj.

M. Ft. emulsio. Add bromine, pure, gr. dcccl.x. S.: Tablespoonful night and morning, increased as directed.

Or it may be combined in this emulsion with potassium bromide, in order that the pure

bromine will not be lost by fuming. The vegetable oil may be changed for pure Norwegian cod-liver oil:

EMULSION OF BROMINE, MODIFIED.

℞ Pulv. acaciæ, ʒ ij;
Ol. sesamum or ol. morrhuæ, f ʒ viij;
Aquæ dest., f ʒ vj;
Ol. gaultheria, ♏ lx.

M. Ft. emulsio. Add bromine, pure, grs. dccclx; potassii bromidi, grs. ccclxxx; bromine, grs. xxx; potass. bromide, grs. xv. S.: A tablespoonful night and morning, and increase as directed.

Bromine given in this manner is less irritating to the intestinal tract, is not constipating, is markedly less toxic, and seems to be much more lasting in its effects. It should be given a more extensive trial, especially where the single or combined bromide salts fail. In making the bromine to prevent loss from fuming the druggist needs to be quick in adding the bromine. In giving bromine, please consider one grain by weight of bromine as equal to two grains of bromide salts from a therapeutic standpoint.

THE DIETETIC TREATMENT OF GASTRIC HYPERACIDITY—HYPERCHLORHYDRIA.

In a critical summary of this subject in the *Scottish Medical and Surgical Journal* for February RUSSELL begins by reminding us that this subject is somewhat complex, and that the recognized authorities are not agreed. There are, however, certain ascertained facts. It is well known that in hyperchlorhydria the digestion of starch in the stomach is early arrested; in other words, the amylolytic stage of gastric digestion is shortened, owing to the ptyalin being rendered inert or destroyed by the excess of acid. This is the explanation of the amylaceous dyspepsia of which we hear a good deal, and which is often recognized, although of its true significance there may be no correct idea. Some people even suggest that this arrest is of little consequence, as the starch passes into the duodenum to be acted upon there, and in the small intestine generally, and finally converted. This may be so in fairly normal digestion; it is certainly far from the truth in hyperchlorhydria. The retention of the undigested starches by the hyperchlorhydria stomach is a most important factor in the case. Based upon what has been said, two lines of treatment are adopted. The one is resorted to with a view to using up the excessive gastric secretion, by giving abundant proteid food, a readily digested form. The other method is based on the hypothesis that the more proteid is taken the greater the secretion of acid; and that to correct the hypersecretion, patients are best treated by a diet consisting largely of carbohydrates.

Von Sohlern, Hemmeter, Rosenheim, and others advocate the carbohydrate line of treatment; Boaz, Penzoldt, and others adopt the proteid method; while others, as Riegel, compromise the matter by giving both kinds, but lay stress on the importance of both being given in an easily digestible form.

Underlying this divergence of opinion is the question whether proteid diet stimulates to greater acid secretion than a carbohydrate diet. Meyer has anew examined this point, using plasmon and wheat meal in amounts of equal caloric value for his investigations. He assumed that an indication for diminishing proteid food in hyperacidity would first be seen if it were proved that, after a long continuance of food poor in albumen, the stomach reacted with less secretion of hydrochloric acid. To determine this point he fed three persons with vegetable diet for fifteen days. After fifteen days he added flesh three or four times daily without any diminution of the other foodstuffs given. Briefly, the results he obtained were, that a food poor in albumen did not diminish, but might even increase the acidity; and he failed to attain any lasting influence on the secretion, and therefore concludes that there is no ground for confining the diet to carbohydrates. Meyer's observations bring out clearly two points of practical interest, confirmatory of clinical experience, namely: first, that after carbohydrate food the hyperacidity comes on much sooner than after proteid food; and secondly, that the exhibition of proteid in combination with carbohydrate is of value in giving the acid which is present material with which readily to combine. By this means the amylolytic processes are favored and prolonged.

With reference to the larger question it is not believed Meyer's observations can be accepted as of much value. Observations of the kind he made would have to be carried on over a much longer period of time to allow of deductions to be made which could be accepted as reliable guides. Hemmeter's experiment is always to be recalled in this connection; he brought up two puppy dogs, the one largely on carbohydrates, the other largely on proteids, and at the end of a year found that the former secreted less acid than the latter. Meanwhile the proteid treatment

is popular because of the speedy relief it often affords; on the other hand, von Sohlern and others still adhere to their contention that the carbohydrates have a distinctly beneficial effect.

The question of diet depends very much on the severity of the condition, and in a very important measure on the type of carbohydrate which is used, and also on the skill with which the whole diet is regulated in individual cases. A mixed diet does admirably in many cases if the proteid be given in an unirritating and easily digested form, and if the carbohydrate be given at the right time and in a form capable of rapid transformation.

One further point of interest in connection with diet in hyperchlorhydria is the action of fat. Bachmann has lately shown by investigations on persons suffering from this condition that fat exercises a restraining influence on both the total acidity and the free hydrochloric acid, while not interfering either with the digestion of starch or the secretion of pepsin. Strauss has also shown the beneficent influence of fat in these cases.

PULMONARY PHTHISIS AND ITS TREATMENT.

ALEXANDER JAMES, in the *Scottish Medical and Surgical Journal* for February, 1901, tells us that in the treatment of symptoms in phthisis the use of the cough must first be borne in mind as removing secretion and destroyed portions of lung tissue; and we can understand that if the cough is not so severe as to disturb sleep at night, and does not really annoy the patient during the day, no special treatment for it is required. In the milder cases it is apt to occur mainly in the morning, and for its relief a cup of warm tea or of hot milk, or of milk with a teaspoonful of glycerin, or of rum and milk, will often suffice.

If the cough is really troublesome by day or night, an intralaryngeal injection of menthol in parolein (20-per-cent solution and 3 ss or 3 j to be injected) should always be tried. This often relieves most markedly, and it avoids the necessity for cough mixtures, and so interferes less with digestion. If cough mixtures have to be used, the Begbie mixture is believed to be the best, as it acts as a tonic as well as a cough sedative. If a more sedative effect is required, we can use the Brompton mixture; whilst if the throat appears specially irritable, the glycerin and codeia jelly may be tried. In early cases, and especially when the phthisis has resulted from an exposure (catarrhal pneumonic phthisis), a blister over the affected apex is frequently of great use. If the cough causes vomiting, we should advise absolute rest for an hour after food; and if in spite of this vomiting occurs, and the stomach is emptied, efforts should be made to induce the patient to take a fresh supply of food at once.

Next, as regards hemoptysis. If this is slight, complete rest only is necessary, and the patient should be advised to avoid speaking and restrain the cough as much as possible. If necessary, a little morphine may be given to quiet the cough. If the hemoptysis consists only in the expectoration of a little dark blood in the morning, and if with this the pulse is rather weak, morphine should be avoided, and a little digitalis may be given at night. In such cases the bleeding is due rather to sluggish circulation, and this the digitalis tends to remove. It must be remembered here, however, that on the other hand digitalis may do harm by raising the blood-pressure, and so causing a hemoptysis. Our guide for its use is mainly the condition of the pulse. In cases of copious hemoptysis, our first duty is usually to comfort the alarm of the patient and his friends by reminding him that a hemorrhage is very seldom fatal of itself. Secondly, we have to remember that slight faintness is salutary in that, through the weakening of the heart's action, the vessels become less filled. We insist on absolute rest; we tell the patient that he must on no account move or speak, and that he must restrain the cough as much as possible. We keep the room cool, and see that the patient's head and shoulders are slightly elevated. An ice-bag over the affected portion of the lung is often useful; and to prevent the weight of the ice-bag disturbing the patient, a good plan is to have it slung. We can extemporize an apparatus for this purpose readily, by tying two sticks to the head and foot of the bed above the patient's body. A piece of cord is tied to the upper ends of these, and from this the ice-bag can be slung and allowed gently to rest on the affected part of the chest. A little morphine may be given hypodermically, and it is usual also to advise ergotine also hypodermically, or some astringent, gallic acid, or aromatic sulphuric acid, by the mouth. The less given by the mouth, however, the better, and any food should be taken cold.

In all cases of hemoptysis the condition of the bowels should be carefully looked into, and better results have been seen from a purgative in such cases than from any so-called astringent.

Next, as regards the fever. In connection with this it is to be remembered that inasmuch as the fever, with its diminished appetite and digestive power, its thirst, increased waste and emaciation, is the main effect of the disease, the treatment of the fever is the treatment of the whole disease. For it, therefore, we must trust to absolute rest, open air, and feeding, and we must use the so-called febrifuge drugs, quinine, phenacetine, antipyrin, etc., as little as possible. In addition to food, wine is often useful, and if the fever is high, the application of cold or the ice-bag to the head or the chest has been recommended.

The sweating, like the fever, is one of the effects of the disease as a whole, and will also be benefited by general treatment. Occurring, as it is so apt to do, at night, the patient should not be too heavily clad, and the air of the room should be cool. Night feeding has its uses, and a little milk and alcohol during the night often does good. Sponging the body with a little vinegar and water, and a change of clothing, is required in severe cases; and as regards drugs, probably Niemeyer's pills, or a pill of oxide of zinc and belladonna, are the most useful remedies. For the laryngeal complication, the patient must be told never to attempt to speak above a whisper. Intratracheal injections of menthol and parolein, the application of lactic acid solution (20- to 80-per-cent) by the brush, or the insufflation of boracic acid and iodoform, or of powdered iodol, have all been recommended. If swallowing is painful, spraying with cocaine solution may be tried before food; and in such cases directions to the patient to suck the food through a tube whilst lying in the prone position has been found of use.

In a phthisical patient diarrhea may result from several causes, *e. g.*, intestinal catarrh, waxy disease, and tubercular enteritis. Of these the last is the only one to which we now need refer. This is apt to be rather intractable as regards treatment, and when severe it becomes very exhausting to the patient. For it complete rest is of the greatest importance, and for food we trust mainly to the starchy. Steamed biscuit and milk, cornflour, farola, rice, arrowroot, and sago are often useful. As regards drugs, it is advised to generally begin with mercury, and five drops of the liquor hydrargyri bichloridi, with five, ten, or fifteen of the liquor morphinæ hydrochloridi, are often of service. Failing these, oxide of zinc or bismuth combined with morphine may be tried, and then the various astringents, kino, coto bark, krameria, etc.

The number of drugs which in phthisis have been supposed to exercise a favorable effect is unending. Foremost amongst them comes cod-liver oil. As is well known, many people cannot take it well, but it should always be tried, even in doses so small as a half-teaspoonful, and taken before, after, or during a meal. With the cod-liver oil, the author is frequently in the habit of prescribing a few drops of the liquor arsenici hydrochlorici, which suits well in combination. If the cod-liver oil cannot be taken, we have recourse to emulsions and maltine preparations. Of the tar preparations, the old-fashioned tar water is considered as good as any. Patients may begin with a half or one wineglassful thrice a day, and increase it *ad libitum*.

THE ALLEGED ANTIDOTAL EFFECTS OF CYANIDE OF POTASSIUM, MORPHINE, AND PERMANGANATE OF POTASSIUM.

Dr. Heim, of Erlangen, recently published the outcome of certain experiments carried out by him on mice, which tended to prove that morphine and cyanide of potassium were possessed of reciprocal antidotal properties which, if real, would have been of the greatest service. Unfortunately, Dr. Heymans, of Ghent, after repeating the experiments, arrived at a contrary conclusion. He states that whether injected before or at the same time as the other, neither of these substances appears to exert the slightest retarding effect on the symptoms of intoxication. Even when mixed and injected together the results were in no way modified. Of more practical interest is the result of his investigations on the much-vaunted action of permanganate of potassium in cases of opium or morphine poisoning. He admits that if permanganate be added to the solution of morphine *in vitro* in such quantity as to insure the persistence of the violet coloration the mixed solution may be injected with impunity. If, however, the permanganate be injected separately from the morphine no antidotal effect whatever is produced, and he concludes that in cases of morphine poisoning the proper course is to

wash out the stomach, and not rely upon the alleged neutralization action of the permanganate, the existence of which he formally denies. The experiments, on which the discovery of the antidotal effects of the permanganate in respect to morphine hangs, were based more, we believe, on their administration by the mouth, either simultaneously or after a very brief interval. The fact that the opportunity of doing this in practice must rarely present itself robs the treatment of its importance.—*Medical Press and Circular*, Feb. 6, 1901.

TROPICAL DYSENTERY AND ITS TREATMENT.

In the *University Medical Magazine* for February, 1901, B. L. WRIGHT asserts that the treatment which seems to produce the best results as a routine one, but which of necessity must be subject to modifications as conditions differ, is as follows, viz.: Absolute rest in bed must be insisted upon. The diet must be liquid; if the tongue is coated, chicken broth, egg-albumen, rice or barley water should be given in small quantities at frequent and regular intervals; if the tongue is clean, or when it becomes so, milk should be substituted for the former articles of diet. Whatever diet is selected should be given to the patient lukewarm, as either hot or cold food seems to produce exacerbations of the disease. A woolen belly-band must be worn, so as to thoroughly protect the abdomen. Extract of ipecac is probably the best drug to use in the early stages, and should be administered as follows: No food should be given for three hours; then twenty drops of tincture of opium should be given, followed twenty minutes later by one to two grains of extract of ipecac, the patient being instructed to remain absolutely quiet, in order to lessen the tendency to vomit; should vomiting occur within an hour, the above dose should be repeated.

This treatment should be continued upon the two succeeding days, at which time, if the stools have partially regained a fecal character, the following prescription will prove useful in the further treatment of the disease:

℞ Bismuth subgallat., 7.9 Gm.;
Phenol salicylatis, 2.4 Gm.;
Morphinæ sulphat., 0.065 Gm.

M. et ft. chart. no. xij. Sig.: One powder every two hours.

If the ipecac cannot be retained by the stomach, magnesium or sodium sulphate in doses of 3.7 grammes every hour should be substituted for it. If the above treatment prove unsuccessful, calomel and opium in doses of 0.065 gramme each every two or three hours sometimes give good results.

After the acute stage of the disease has passed, topical treatment, by means of high irrigations of the colon, passed through a rectal tube, will be found to greatly benefit the majority of cases. The most efficient treatment is creolin, 4.0 Cc. to the pint; salicylic acid, 2.0 grains to the pint; and silver nitrate, 1 0 gramme to the pint. This latter solution should not be used more often than twice a week.

For the griping pains, hot fomentations, a spice plaster, or a turpentine stupe will usually give relief. In the gangrenous stage the heart must be carefully watched, and cardiac stimulants given as required.

In the treatment of chronic dysentery, hygienic and dietetic conditions play the most important part. The patient at all times should be warmly clad, the abdomen fully protected by a woolen belly-band. Warm baths should be given frequently; cold baths are extremely dangerous for this class of patients, and should never be permitted. Change of climate is very desirable; a sea voyage is frequently productive of the greatest good.

The diet should consist of soups, light vegetables, and fruits; meats should be absolutely prohibited. An increase in the amount of food will at times prove a very satisfactory measure. For the constipation which frequently follows recovery from this disease, enemata are usually indicated; small doses of castor oil may be given every other day, until the bowels are moved normally.

CONVULSIONS WITH SCARLET FEVER AND IMPORTANT DEDUCTIONS FROM THE TREATMENT.

In an article bearing this title in the *Medical Record* of February 23, 1901, HAYD concludes:

1. Every case of scarlet fever is a law unto itself.

2. Convulsions may and do occur when least expected, and every case of scarlet fever should be closely watched for many weeks.

3. The urine should be frequently examined, not only its specific gravity taken and albumin tested for, but urea calculations should be often made.

4. Mere specific gravity is not a sufficient

indication as to the amount of urea eliminated, because the specific gravity may be fairly high, and yet urea can be retained in poisonous quantities; moreover, a large quantity of water can be voided and with a fair specific gravity, yet convulsions may occur.

5. Albumin need not be present, or only a trace may be found in the urine, yet convulsions may occur; but the albumin would be found perhaps in great amounts after the convulsions have occurred.

6. Only the most digestible food and nourishment should be given, and if possible such foods as produce little gastric and intestinal putrefaction; the food *par excellence* being milk, because the amount of toxalbumins and putrefactive residue is reduced to a minimum.

7. If milk cannot be digested or will not be taken, no food should be administered for days by the stomach—simply an abundance of water, and the patient nourished by nutrient enemata. If broths are borne, chicken broth is a pleasant and nutritious food.

8. In any severe case of convulsions, only small amounts of nourishment, if given by the stomach, should be attempted at any one time, and frequent urea calculations should be made to see that the proper quota or equivalent of urea is eliminated, and if the urea is not increased after the ingestion of the food, then the food must be withheld, or such food substituted as will not interfere with the proper secretion of urea.

9. If gastric irritability exist, give the stomach and bowels rest, because by giving them rest a period of quiet also results for the kidneys, and that interval of time may be sufficient to permit the kidneys to rehabilitate themselves, either in function or to develop new renal secreting cells, as scarlatinal nephritis is a desquamative process, and new epithelial cells are no doubt often quickly formed.

10. The amount of urea passed in twenty-four hours differs in different individuals, and it may roughly be stated that an excretion of 10 grammes or 150 grains of urea for a child ten years old, weighing sixty pounds, will protect her from convulsions. A patient of the author passed over five hundred grains of urea in twenty-four hours.

11. Hypodermoclysis is a very valuable and safe method to introduce water into the system, and as much as two or three pints can be used, and with proper precautions no danger will result or severe abscess formation follow. The decinormal salt solution should be used, and should be first boiled; the skin is to be thoroughly disinfected by washing it freely with soap and brush, and then washing again with bichloride solution 1:2000, and subsequently with alcohol. The needle and fountain syringe with tube should be placed in boiling water and boiled for a few minutes to insure their perfect cleanliness.

12. Enteroclysis, or the introduction into the bowels of a number of quarts or even gallons of water, of a temperature of 80°, if much fever be present, should be employed once or twice during the twenty-four hours.

13. Strychnine and digitalin are our most valuable heart stimulants, and brandy is our best food and diffusible stimulant.

PREVENTIVE TREATMENT OF MIGRAINE.

E. W. MITCHELL details the following plan of treatment in the *Journal of the American Medical Association* of February 9, 1901:

1. Red meats are to be rigidly excluded; fish, bacon, brains, sweetbreads, and eggs are allowed. Rich and highly-spiced dishes are to be avoided. Coffee, tea, and alcoholic beverages are to be excluded. Sweets should be reduced, but when meats are excluded a moderate amount is well borne. Water may be taken very freely. Meals to be taken at regular intervals, and overloading of the stomach to be avoided.

2. As much outdoor exercise is to be taken as possible—undue fatigue to be avoided; rooms always should be well ventilated, both by day and night; and hot baths taken two or three times a week. In some cases the Turkish bath is beneficial; and in others the morning cold sponge bath is directed.

3. The medicinal treatment aims to regulate the bowels, to promote intestinal antisepsis, and to stimulate the liver, the great organ for completing the oxidation of the products of metabolism and protecting the body from poisoning. The same end may be attained in many ways. The various salicylates are all useful. In obstinate cases an occasional mercurial is required. The author has had the best result in the long-continued use of some of the formulæ recommended by Dr. Rachford. The one most commonly employed is as follows: Sodium sulphate (crystals), 120 grains; sodium phosphate, 30 grains; sodium salicylate, 10 grains; tincture of nux vomica, 3 drops; distilled water,

enough to make 4 ounces. This dose is to be taken before breakfast each morning, and is best taken in a glass of Seltzer; or, still better, the ingredients are made up in these proportions in large siphon bottles charged with carbonic acid. The proportions are variously modified in different cases. In the author's own case he has seen no benefit from the use of potassium permanganate, which Dr. Rachford frequently employs.

TUBERCULAR LYMPHADENITIS.

HAMMOND (*Pennsylvania Medical Journal*, January, 1901) considers it of great importance that the symptoms of tubercular lymphadenitis be recognized early.

The diagnosis must be made from simple adenitis, lymphadenoma, lymphosarcoma, and syphilitic adenitis.

From simple adenitis, in the cervical region, it can usually be differentiated by the history of the acuteness of a painful swelling, by the absence of acute nasopharyngitis, middle-ear inflammation, alveolar inflammation, as well as absence of exanthematous diseases; if in the axillary, by the absence of acute lymphangitis. If in the inguinal region, to the above excluded causes should be added such as would arise from gonorrheal infection.

In the diagnosis from lymphadenoma there should be little difficulty in detecting enlargement of the spleen, thymus gland, and liver, as well as blood changes. In these tissues also the glands tend to much greater enlargement, attaining sometimes the size of a fist.

Diagnosis from lymphosarcoma may at first be difficult, but development will display special malignant features involving deep tissues, attended by secondary deposits in various internal organs, especially the lungs, liver, kidneys, brain, and bone.

From syphilitic adenitis, diagnosis is usually rendered easy by the history of the initial lesion, and by the primary involvement of the postcervical glands, tubercular infection always taking place first within the glands situated in the anterior angle of the neck. The rapid disappearance under antispecific treatment is reliable evidence of the nature of the growth.

In constitutional treatment the patient should be placed under the most favorable general hygienic and personal conditions. The most suitable drugs appear to be strychnine, quinine, iron, potash salts, and cod-liver oil, the latter by inunctions.

Surgical treatment may be needed for glands which do not subside after, in addition to the above, there has been additional applications of iodoform inunction, or injection directly into them of a twenty-five-per-cent solution of glycerole of iodoform, and the application of a snugly fitting stock if in the cervical region, or firm compress if in any other portion of the body. In the removal of the glands breaking of the capsule cannot be avoided; it should be at once thoroughly removed with a sharp curette.

Deep glands are best removed by blunt dissection. After the cavity has been washed with a solution of bichloride of mercury 1-to-1000, or carbolic acid solution 25-per-cent, it should be packed with iodoform gauze. This should remain, if there be no contraindication, for three days. After washing with carbolic acid, where no necrosis of the tissues about the gland is present, the edges may be brought together and primary union will often take place by compression. The parts should be immobilized.

In abscess, in addition to the above, free access to the cavity should be made.

Curettement of granulation tissue should be thorough, and after disinfection with carbolic acid solution, the entire cavity should be packed with iodoform gauze. The last may sometimes be omitted if the parts are brought together at once, and primary union secured by immobilizing the parts after applying compression.

Sinuses should be freely excised and the edges thoroughly curetted. If in the subcutaneous tissues, the small bunches of exuberant granulations that are found along its walls will be an excellent guide to the subjacent tuberculous, glandular focus. It should be followed up, freely excised, and curetted with a sharp curette.

TREATMENT OF TUBERCULAR EPIDIDYMITIS AND ORCHITIS.

MAUCLAIRE (*Annales des Maladies des Organes Génito-Urinaires*, No. 1, 1901) has treated eighteen cases of tubercular epididymitis and orchitis by section of the spermatic cord between two ligatures.

He notes that in non-suppurative cases the results are extremely satisfactory, and believes that this treatment should take first place among conservative procedures. In three cases he noted that the diseased testicles shrank to the size of normal organs, which they resembled in all respects except

that they were non-sensitive. In two cases prostatic lesions were markedly benefited. In some cases there was a gradual atrophy, the production of a fistula, and finally a cure at the end of about four months.

In about one-quarter of the cases the results were unsatisfactory because the testicle or epididymis had, before operation, been extensively suppurating.

In regard to the effects of resection of the spermatic cord, Carlier, on the basis of an experience in five cases, asserts that this operation is not followed by gangrene of the testicle, probably because of an anastomosis between the testicular and scrotal circulations.

Even atrophy of the organ does not necessarily follow in a man over fifty years of age.

These results scarcely accord with the numerous reports of cases of rapid testicular atrophy following operations for varicocele or hernia in which the spermatic artery has been cut. It may be that the complete section of the cord in young persons is more likely to be followed by gangrene because the testicle at this period of life requires for its continued vitality a larger blood-supply.

THE ROENTGEN RAYS AND THE DIAGNOSIS OF URINARY CALCULI.

MOULLIN (*Lancet*, Jan. 19, 1901) has found the Roentgen rays of unusual value in the diagnosis of renal, ureteral, and vesical calculi. They can be relied on in most cases to give definite and accurate information not only as to the existence of a calculus, but as to its size, its exact position, and whether there are other calculi present either in the same or in some other part of the urinary tract.

He notes several instances where the rays indicated the presence of a fixed calculi where no other method would have been successful.

If no calculus is shown after a second examination, repeated under varying conditions, it may be taken as certain that there is no calculus.

The tube should be of low vacuum, as the object is to obtain differentiation rather than penetration. A coil giving a ten-inch or a twelve-inch spark answers better than a static machine, as the wattage of the secondary circuit must be high and the amount of the discharge sufficiently large.

The bowels should have been cleared out thoroughly, and all foreign bodies, such as clothes, etc., must have been removed from the area to be examined.

As a rule the patient should be placed in the recumbent position, with the plate, supported by a stout board, beneath him, and an aluminum screen between the body and the tube. A good plan is to take two exposures when there is any doubt, one of the kidneys and the upper part of the ureter, and the other of the lower part and the bladder.

One of the chief difficulties is the patient's breathing. The patient should be directed to take very shallow breaths, or, better still, a firm bandage should be put around the abdomen.

Distention of the bladder with air in the case of a fixed vesical calculus is of use, and provided the air is sterilized first, and due regard is paid to the sensations of the patient, it may be practiced with no more danger or unpleasantness than that which attends the process of washing out the bladder.

Unless everything is certain, and a doubtful spot cannot be brought out by intensification of the plate, a second examination should be made after a few days' interval. If there is any doubt then, a separate exposure should be taken of the area in question, a leaden plate with a circular opening exactly opposite the anode being interposed between the tube and the patient, so as to cut off as far as possible all extraneous rays and obtain a better defined shadow.

NEPHROPEXY IN LESIONS OF THE RENAL CIRCULATION.

LEDENTE and DELBET (*Annales des Maladies des Organes Génito Urinaires*, No. 1, 1901) report the case of a woman twenty-eight years old who suffered since 1892 with attacks of pain located in the epigastric region which were attributed to dilatation of the stomach. In 1897 she noted a vague uneasiness and sense of weight in the lumbar region, especially marked in the morning on rising. Later she became subject to fainting spells, beginning with a sense of weight in the lumbar region. These attacks became more and more frequent until she suffered from one or two a week. There was also progressive emaciation.

An examination showed a movable right kidney. During one of the attacks, which was characterized by pallor, cold extremities, and preservation of consciousness though the patient could not speak, the movable kidney

was found to be almost doubled in size and to impart the sensation of great tension. It was also extremely sensitive. Therefore it seemed evident that these curious nervous processes were due to intermittent hydronephrosis.

For the purpose of making the diagnosis absolutely certain, Delbet catheterized the ureter during an attack. He drew off not more than 2½ drachms; none the less, the patient experienced instant relief.

The kidney was exposed by an oblique lumbar incision, and fixed to the last rib and to the parietal muscles by three catgut sutures.

The patient experienced three attacks similar to those which she suffered before the operation, and after these attacks she entirely regained her health. She has been absolutely well for two years.

The authors attribute these nervous attacks to congestion and retention, and do not believe the beneficial effects were obtained simply by fixing the kidney in place, since three slight attacks took place after the operation. Rather, they believe, there was a modification produced in the renal circulation.

They strongly urge that an operation as simple and safe as nephropexy should always be advised when there is reason to believe that impairment of health is due to lesions in the renal circulation.

CONGENITAL DISLOCATION OF THE HIP.

BRADFORD and COTTON (*Boston Medical and Surgical Journal*, Jan. 31, 1901) note that Lorenz consideres it as proved that the chief obstacle to reduction in congenital dislocation of the hip lies in the soft parts. The most important of all the obstacles is a narrow capsular isthmus. In double dislocation the reduction of both hips should be done at the same time in young children.

Lorenz is of the opinion that, for a cure, treatment by means of fixation apparatus is necessary for two years after the reposition.

As a result of the bloodless method, Lorenz has failed fifteen times in 360 cases, and of 135 cases the radiographs of only seventy-nine show anatomically satisfactory results.

Hoffa has employed Lorenz's method in sixty-four cases (twenty-two of these double). The reduction was successful in all, but of the forty-two unilateral cases only four showed permanent reduction. In many others there was simply a transposition forward. In the bilateral cases the results were even less good.

Broca and Monchet have used Lorenz's methods in thirty-eight cases of unilateral and twenty-four bilateral hip luxations at ages from twenty months to fourteen years. All cases above ten were failures. Of the sixty-two cases, only two proved by the radiograph to be actual reductions. There was almost always a transposition of the head toward the anterior spine. As to results, fifteen were called excellent, and twenty-five satisfactory.

Schede and Petersen have come back to Paci's view, and hope usually for amelioration — for transposition.

As things stand, the bloodless method is hardly advisable after ten years; after this, open operation. For much later cases, subtrochanteric osteotomy is often advisable and serviceable.

Kirmisson finishes a review of the whole subject by examining the benefits of fixation following traction, followed for several years, the head being kept forward near the normal position. He is rather inclined to regard forcible reduction as a last resort than as desirable.

Hoffa has concluded, after performing the open operation 248 times with ten deaths (none in the first 132), to always try the bloodless reduction first; if it fails, then open operation. He thinks the most favorable age from three to eight years. After treatment, massage and gymnastics are very important.

Doyen thinks radical cure can be obtained only by the open operation. He has devised a special borer to form the acetabulum; this he thinks the most important part of the operation. The actual reduction may need his special retraction hook to replace the head. After operation he abducts and rotates inward. He thinks it may be necessary to correct rotation later by supracondyloid osteotomy of the femur.

CORNS.

KELLER (*Medical Council*, February, 1901) would have a plaster cast made of a foot covered with corns, and a last made like the foot, humps, bumps, and all. If the corn is between the toes, the sole should be made wide enough to allow the toes to be wedged apart with pledgets of cotton.

For removal of the corn he soaks the foot

in hot water for fifteen minutes before bedtime, and applies over the corn a good coating of salicylic acid and collodion, one part to three. This is repeated for five or six nights, each time removing all dead tissues with a knife after bathing. A drop of castor oil well rubbed in every night helps greatly.

He has often softened a hard corn by wearing a piece of surgeon's adhesive plaster for a few days.

As a drying powder, after bathing soft corns in hot water for ten minutes and removing the dead epithelium, he uses freely one part pulverized acetanilid and two parts boracic acid. The toes are then propped apart with cotton pledgets.

Keller argues that in cases where the corn is almost beyond skill, since the toes are so distorted as to be of little use, one of the toes should be amputated at the torsophalangeal joint. If the corn is between the fourth and the little toe, the fourth one should be removed to avoid a scar where the shoe might rub.

THE WOOLEN YARN TRUSS IN INFANTILE INGUINAL HERNIA.

BOLAND (*Boston Medical and Surgical Journal*, Feb. 14, 1901) notes that Malgaigen's statistics give one case of inguinal hernia out of every twenty-one children under one year old, and that Bertillion believes the proportion among poor and neglected children is relatively greater. He believes that in many of the cases a cure will be hastened or assured by retentive means.

The worsted skein truss, he believes, has much to recommend it in the first year, when the frame is small, thin in flesh, and tender to mechanical pressure or irritation. It can be easily made at the bedside, and can be renewed at but slight cost. The use of this truss, it is believed by Boland, will insure the hearty cooperation of the mother carrying out the equally important corrective measures.

Although cheap and simple, some skill is needed in making and using the skein truss. With a tape line measure the distance around the child on the plane of the pelvic inlet, beginning with and coming back to the hernia; carry the line down on the perineum and up and out in the gluteofemoral crease, and almost to where it would touch the girdle part. Mark this length on the door or window casing, and at each end of it drive a three-inch nail half-way to the head. Over these nails wind the worsted, previously rolled from the skeins as bought, just tight enough to keep it from kinking, and use thirty to forty threads according to size and strength required. Remove the skein, tie in the two loose yarn ends and in one end loop a foot of white tape, and the truss is ready. Carry it round the child with the long end at the affected groin, pass this longer end through the other loop, and draw the long end down under the corresponding thigh and up in the gluteofemoral crease, and tie the tape to the girdle.

The use of this truss, which can be worn by frail or delicate infants where the ordinary truss is useless or too irritating, must, however, be coincident with general measures to reduce intra-abdominal pressure to insure the best results.

Boland had four successful cases, all practically alike. He found that the cure can usually be effected in a year or less, and that the continued use of the truss causes but little inconvenience.

Before applying the truss, the undescended testicle or encysted hydrocele of the cord should be excluded.

The truss must be worn day and night, even during the bath, and only removed when wet or soiled.

THE TREATMENT OF CANCER OF THE RECTUM.

KRÖNLEIN (*Revue de Chirurgie*, No. 10, 1900) as the result of an analysis of 881 extirpations of the rectum for cancer concludes that this procedure is a method of choice; that it will give an operative cure in four-fifths of the cases, and a permanent cure in one-seventh; that the best functional results are obtained when it is possible to bring the intestine to the surface at the anal aperture, and to preserve the sphincter.

Kraske has operated on 120 cases by the sacral route, and has obtained very satisfactory results. He notes that recurrence is always to be expected even after five years.

The most radical method consists in a combination of the abdominal and the sacral routes. By a laparotomy the superior hemorrhoidal artery is secured between two ligatures, and an opening of the peritoneum is made all around the rectum, thus mobilizing this part of the gut. If necessary, the lymphatic glands of the mesocolon and of the mesorectum are at this time extirpated.

The site of the pelvic operation is then packed, and the abdominal wound is provisionally closed, after which, by a parasacral incision, the rectal tumor is removed. Of four patients thus treated, two died.

Rehm believes that together with the rectum should be extirpated the aponeurotic layer which surrounds it; and that even though the cancer be small and confined to the anus, it should be treated by an extensive operation going well wide of it.

Hochenegg prefers the sacral method for removing the cancer of the rectum, reserving the peritoneal incision for growths situated near the surface. He places the patients in the left lateral decubitus; nor is this position changed during the entire operation. The sacrum and coccyx are bared by a long incision with its convexity to the right. As much of the bone is resected as seems necessary. If the sphincter is involved the anus is cut around and is removed with the rectum, a sacral opening being then established.

The total mortality of 121 cases operated on by Hochenegg is between five and eight per cent. There are twenty-five per cent of permanent cures.

Schuchardt extirpates the rectum and the pelvic colon without resecting the sacrum. He calls attention to the shortening which takes place in the colon and the rectum as a result of cancer, syphilitic or tuberculous infiltrations.

SURGERY OF THE JOINTS.

KÖNIG (*Revue de Chirurgie*, No. 10, 1900) calls attention to the absolute need of perfect surgical cleanliness in operations on non-infected joints. As a means to this end he urges the following measures:

1. The finger should not be introduced within the articulation. The knee may be resected, the patella may be sutured, and various bodies may be extracted from joints without touching their interiors.

2. The operation should be conducted under complete hemostasis accomplished by Esmarch's bandage.

3. No antiseptic lotion should be used.

4. Drainage should not be employed unless absolutely necessary.

König finds that when joints are infected with the streptococcus and staphylococcus drainage gives bad results. Under such circumstances free incisions must be practiced, so placed as to open all the articular recesses and the muscular interspaces.

There is a gonorrheal arthritis characterized by extreme pain and a tendency to contracture and ankylosis. It readily becomes chronic, and is accompanied by a moderate articular effusion, but is characterized by lardaceous infiltration of the synovial and parasynovial tissues. This is best treated by a double lateral incision into the knee-joint. If, in spite of the free incisions in cases of serous arthritis, the suppurative fever persists and there is grave danger of septic complications, these lateral incisions should be supplemented by a free transverse cut above the patella uniting them. The flap thus formed is turned down. The suppurating surface is thus freely exposed.

In arthritis deformans of the hip accompanied by loss of function, the best results are obtained by resection of the head of the femur.

Schäde, in commenting upon König's paper, strongly urges the advantages of antiseptic lavage.

OBLIQUE OR UPRIGHT WRITING.

SCHUBERT (quoted in the *Boston Medical and Surgical Journal*, Feb. 14, 1901) examined a number of children in the Nuremberg schools to determine the effect of the different styles of writing.

Inclination of the head to the side is more frequent in oblique than in upright writing. The symmetrical position of the head is two and one-half times more frequent in upright writing than in oblique writing.

Only a third of the children held their shoulders in proper position in oblique writing, and one-half in upright writing.

The shoulder position is better in both groups than the head position.

Obliquity of the head was not only more frequent but was of a greater degree in oblique writing than in upright writing. The same was true of forward bending.

In upright writing only eleven per cent of the children were near-sighted, in oblique writing fifteen per cent, and in the changing position twelve per cent.

RESECTION OF THE SIGMOID FLEXURE FOR THE RELIEF OF VOLVULUS.

STEINTHAL (*Revue de Chirurgie*, No. 10, 1900) was compelled to operate upon a girl twenty-one years old, who had been obstinately constipated, for the relief of obstructive symptoms. The sigmoid flexure was

found twisted in the direction taken by the hands of a watch. The top of the loop extended as high as the right costal margin, and the length of this loop was about one meter. The distended gut was punctured and placed in its proper position, but about eight weeks later the accident recurred. This time about one foot of the sigmoid flexure was resected, the patient thereafter remaining well.

Bergmann notes that in six cases of operation on the sigmoid, he performed an anastomosis by means of Murphy's button. Two of these patients died.

CONTUSION OF THE ABDOMEN.

ENGARER (*Revue de Chirurgie*, No. 10, 1900) notes that rupture of the intestines is usually caused by a vulnerating force acting upon a limited surface perpendicular to this surface when the muscular walls are not prepared. Shock as a symptom is only of importance when it persists. The respirations become costal in type. Vomiting is precocious and persistent; it is usually wanting when the intestines are not ruptured. Normal hepatic dulness by no means excludes the presence of rupture. Abdominal rigidity and distention are symptoms which strongly point to this accident.

Of 160 cases of contusion with rupture, 149 will die, but eleven will recover if treated conservatively. Of these eleven, however, it will be necessary to operate upon ten for the relief of fistulæ or fecal abscesses. Hence an immediate operation is indicated.

THE RADICAL TREATMENT OF HERNIA.

ROTTER (*Therapeutische Monatshefte*, Heft 1, 1901) states that Kocher's method of radically treating hernias is the only one which stands in the same class with the method practiced by Bassini.

Kocher lays particular stress on the careful isolation of the hernial sac, especially its neck. He attaches but little importance to strengthening the abdominal walls. He eliminates the hernial sac without splitting the inguinal canal. The cord is freed at its point of exit from the external ring, and after splitting the cremaster muscle and the common vaginal tunic, the sac is separated from the cord as high as possible. A short cut, half a centimeter long, is then made through the externaal oblique fascia, one or two centimeters to the outer side of the external ring. This opening is deepened down through the peritoneum. A closed forceps is introduced into the peritoneal cavity and along the sac of the hernia until it grasps the end of this sac. By traction upon the forceps the hernial sac is invaginated, and its end is drawn through the small wound made over the outer portion of Poupart's ligament. The edges of the peritoneal wound through which the invaginated sac has been drawn are picked up by three or four pairs of forceps and secured either by suture or by ligature, together with the sac. A couple of sutures secure the remainder of the wound, and the operation is completed, unless it seems advisable to close the canal by one or two sutures.

The mortality of 1600 operative cases treated by the Bassini method is less than one-half of one per cent, while Kocher had no mortality in 191 cases. Hence both operations can be regarded as devoid of danger.

As to the permanence of cures, Franz notes, of 593 cases of Bassini operation, the histories of which have been followed, that there was recurrence in less than five per cent. Rotter, out of sixty-seven of his own cases, notes recurrence in less than two per cent. Kocher, of eighty-three cases treated by the invagination method, notes a recurrence of less than two per cent.

In regard to the choice of operation, it is noteworthy that in nearly all Kocher's cases the hernias were small; hence the abdominal walls were not greatly weakened. When the hernias are very large, however, simple ablation of the sac cannot possibly insure a permanent healing. Under such circumstances the abdominal wall must be reconstructed, and here the Bassini operation is indicated.

The results of operative treatment of femoral hernia are quite as satisfactory as those of inguinal hernia. The operation consists in freeing the hernial sac up to Poupart's ligament, and suturing or ligaturing it at this point. The femoral canal is then closed by suturing Poupart's ligament to the pubic crest or the pectineal fascia.

Kocher treats the sac of a femoral hernia by invaginating as described in the treatment of inguinal hernia.

Rotter holds that where, after laparotomy, the peritoneum, the muscles, the external aponeurosis, and the skin have each been separately sutured, there is no likelihood of hernia.

The umbilical hernias are treated by a total extirpation of the sac and of the um-

bilicus. The sheath of the rectus muscle is then split, after which the peritoneum and posterior layer of the rectus sheath are sutured; next the bellies of the rectus muscles are apposed; and finally the aponeurosis is sutured. Of ten cases thus operated upon, two recurred.

Kocher, after extirpation of the sac and navel, closes the opening by a continued silk suture passing through all the structures except the skin. He notes that of seven cases there was not a single recurrence.

TREATMENT OF HYPERTROPHIC ACNE OF THE NOSE.

There appears in *La Presse Médicale*, No. 8191, a photograph of a nose colossal and enormously distorted from acne, and another photograph after operation, presenting a man in no way remarkable.

Sigalas holds that surgical treatment is the only one which affords the slightest hope of relief when the acne has produced very great thickening. Local applications and internal medications are equally inefficacious; nor is there a single authentic instance, according to this author, of benefit to be derived from these conservative means.

The surgical treatment varies in accordance with whether the acne is in its early stage or has produced an extensive hypertrophy. When there is but a moderate increase in the size of the nose, and the thickening of the nostrils and the glaring redness of this organ, there are a number of minor surgical procedures which may prove successful. Linear scarification is not to be classed with these, since its results are at best unsatisfactory. Electro-cauterization by means of four or eight points, brought to a dull red heat, produces a blackish scab, which on being shed leaves a rapidly cicatrizing surface. The treatments are repeated every ten, fifteen, or twenty days. With care there may be left a smooth skin without thickened bands.

When the hypertrophy is more pronounced, in place of these superficial cauterizations a single galvanic cautery needle is employed, and driven to a proper depth into the tissues. The single points of ignipuncture should be about five millimeters apart; since, if they are placed too close, they may produce a destruction of the tegument so extensive as to cause vicious cicatrization. Every two or three weeks a series of cauterizations is made, the later treatment embracing the points situated between the former applications.

The after-treatment is extremely simple. The surface is washed night and morning with boric acid solution, after which boric ointment is applied. For four or five days after treatment there is a little inflammation; should it be unduly severe, evaporating lotions are used.

This extremely efficacious treatment is open to the objection that it sometimes leaves rounded depressions separated by little conical elevations. Because of this fact Broq advises the following procedure: The electrolytic needle of platinum attached to a negative pole should be introduced through the orifices of the sebaceous glands to a depth according to the thickness of the skin. A current of 1½ to 5 milliamperes is then passed, the strength being regulated by the sensation of the patient. When the sebaceous orifices are well dilated, the needle is given a movement of circumduction, thus allowing the current to act upon all the walls of the sebaceous duct, and facilitating the escape of fatty matter which has accumulated in the substance of the gland. Two or three of these punctures are made a minute, and when a sufficient area has been treated the nose is dressed with lint soaked in camphorated alcohol. Every day this electrolytic treatment is repeated until the substance of the glands is destroyed. Finally, the vascular dilatations are treated by fine needles pointed at an obtuse angle seven or eight millimeters from the points. The point of the needle is driven into a varicosity for the length of the bent part and of course parallel to the skin. The current is then passed, care being taken to accomplish only a limited destruction of the vessel.

When the acne has reached its complete development the treatment varies, according to whether the area is pedunculated or sessile. The pedunculated tumors are all cut off by means of a pair of scissors. When the hypertrophied mass is sessile, the operation called by Ollier "decortication of the nose" should be practiced.

Decortication consists in exposing by section the osteocartilaginous skeleton of the nose throughout the whole extent of the hypertrophy. This dissection may be accomplished by thermocautery or by the knife.

The method by thermocautery is practically abandoned because of the cicatrization which follows its use.

The cutting operation is as follows: The fourth finger of the left hand is introduced

into one of the nostrils in order to fix the tissues, after which the thickened masses, having been circumscribed by an incision with a knife, are removed, the dissection being carried as close to the cartilages as possible. There is at first an abundant hemorrhage, which is readily checked. When all the thickened tissues have been removed the raw surface is dressed with iodoform gauze. This first dressing is left in place for four days. On about the tenth day granulations will be formed which will require treatment with silver nitrate every day. If this is used judiciously there will be a small, regular cicatrization which will be completed on the twentieth to the thirtieth day. This cicatrization remains for a long time bluish, but gradually it takes the color of the skin, harmonizing very well with the surrounding parts. It is less retractile than after the employment of the hot iron.

To avoid the dangers of primary and secondary bleeding, Ollier decorticates with a knife and then touches the bleeding surface with a hot iron. Sigalas believes that this procedure gives the best results.

The various autoplastic operations have been found futile.

TREATMENT OF INCONTINENCE OF URINE BY INJECTIONS OF PARAFFIN.

PFFANENSTIEL, led thereto by Gersuny's publications as to the benefit to be derived from paraffin injections in the treatment of incontinence of urine, employed this method, but with unsatisfactory results.

The patient was thirty-nine years old, and suffered from incontinence of urine incident to extirpation of the urethra. This operation was necessitated by a carcinoma which, secondary to an incision of the uterus for malignant disease, invaded the anterior vaginal wall. Because of the extension of this malignant growth, the entire urethra with the surrounding tissue was resected, leaving an opening in the bladder through which a finger could be passed. After three weeks the patient could hold her water from one to one and a half hours. As soon as she stood up, however, there was a constant dribbling.

To relieve this distressing condition, injections of paraffin ointment were made about the bladder neck in the hope of narrowing the opening. Paraffin which melted at 45° C. was employed. With a cannula of medium size communicating with a syringe, injections were made about the bladder opening, particularly into the vaginal submucosa and into the vesical mucous membrane, which was somewhat prominent and pouting. After injection the neck of the bladder was markedly swollen, and the opening into this viscus much lessened, so that only a very thin sound could be passed.

As the patient was returned to the ward she became extremely ill, and suffered from a violent cough. There shortly followed a chill, severe headache, and dyspnea. After recovering from a light attack of bronchopneumonia, in seven days an examination showed that the paraffin injections had maintained about the same degree of narrowing noted immediately after they were given. The patient could hold her urine for about one-quarter of an hour while she was standing.

There was little doubt in this case that a paraffin embolus had been carried to the lungs, possibly also to the brain. Moreover, the reporter believes that it produced little local improvement.

Although Gersuny reports a cure, it is noteworthy that he has had his case under observation not more than three months.

COMPRESSES OF ETHER IN STRANGULATED HERNIA.

FIESSINGER (*Revue Pratique d'Obstétrique et de Gynécologie*, vol. xvi, No. 12; quoted from *Revue Générale de Clinique et de Thérapeutique*) notes that in several cases of strangulated hernia relief had been obtained, where there was no relief by taxis, by treatment by compresses soaked in ether applied over the hernial tumor. A layer of cotton is placed over the tumor, and is soaked every few minutes with ether, thus keeping it constantly cold. After twenty or twenty-five minutes of this treatment, taxis is attempted again. It happens sometimes that the reduction is accomplished with astonishing facility. An injection of morphine may be driven into the tissues near the site of the strangulation. Strangulations lasting forty-eight hours are often reduced by ether, the gut returning to the peritoneal cavity spontaneously. In one case in which strangulation had lasted for over two days, the ether compress was applied while preparations for operation were being hurried. In forty-five minutes the patient felt very much better, and an examination showed that the hernia had disappeared.

COMPARATIVE ASEPSIS.

In the discussion upon this subject held before the Medical Society of Paris, Broca expressed himself to the effect that neither gloves nor masks were essential to surgical asepsis, and that results equally as good as those obtained by gloves were possible provided the surgeon operated rapidly and washed his hands frequently during the operation.

Schwartz advises a frequent washing of the hands during the operation with 1:1000 sublimate. He objects to rubber gloves because they interfere with the sense of touch and make the surgeon more clumsy. In gross operations and in operations upon the septic tissues he strongly advises the use of rubber gloves.

Lejars uses gloves for septic cases in order to have his hands clean for aseptic cases. This he has been doing for two years, and on comparing the results with those obtained before the use of gloves, he is able to find no difference in favor of the later period. Hence he believes that the surgeon can sterilize his hands sufficiently for all practical purposes. None the less, he finds that wounds have healed more promptly, that there has been less need for drainage, and that the cicatrices have been less troublesome.

Guinard calls attention to the need of keeping the hands smooth and free from chaps and fissures and abrasions.

Lucas-Championnière believes that it is possible to thoroughly disinfect the hands. He washes with soap and water first, and then with carbolic acid 1:40 or even 1:20, and keeps his hands perfectly free from abrasions and cracks. How he does this and continues to use carbolic acid 1:20 is not explained. He always uses catgut, and states that he always obtains perfect results. In more than a thousand cases of radical cures of hernia he has had only a single operative death. This occurred in a case operated on the day following a curettement of a woman suffering from puerperal tetanus. Of 107 resections of the knee he has not had a single secondary suppuration to note.

FRACTURES OF THE PATELLA.

BATUT (*Annales de Chirurgie et d'Orthopédie*, No. 11, 1900) acknowledges that this is one of the most thoroughly discussed subjects in recent years, but believes that its importance justifies a further consideration at his own hands. He has collected 251 recent cases treated by open operation with operative if not always functional cure. Of eighty-eight old fractures treated by open methods, four died and one was subjected to secondary amputation.

In the French army from 1890 to 1897, there are records of 125 cases of patellar fracture. Twenty-five cases were subjected to operation without a single operative complication. For this reason and on theoretical grounds, Batut believes that all recent fractures of the patella are to be treated by open suture, unless this operation is absolutely objected to by the patient. If this be done, old fractures will of course require no treatment.

The author rejects bone suture, as being quite inapplicable to comminuted fractures, and because it requires for its insertion special instruments. Moreover, he believes that the presence of a foreign body in or near the joint is a menace to the joint. He advises for comminuted fractures the passing of a thread completely around the patella subcutaneously and drawing it tight. The ligature employed may be catgut or silver wire.

The method of choice in other cases consists in suturing the tendinous expansion lying at the sides of the patella, and serving as a means for the transmission of force from the vastus internus and the vastus externus. When this tendinous expansion is sutured the broken fragments drop into their proper position. Silver wire is used for sewing, the instruments required being a pair of forceps, a needle, and a thread. This method, of course, is applicable only to recent fractures.

Old fractures should be treated by encircling them with silk or catgut; sometimes cuneiform resection and consecutive suture of the lateral ligamentous expansions; rarely by partial or total resection of the patella.

Rupture of the ligamentum patellæ may require either direct suture of the two torn ends or osteotendinous suture or tibial osteotomy. Rupture of the tendon of the quadriceps is treated by direct suture or by osteotendinous junction.

Old fractures with wide separation and fibrous union should disappear from surgical practice. There are, however, certain forms of disability which contraindicate all intervention.

To this paper a few illustrative case histories are appended. The first is that of a man suffering from transverse fracture of

the patella due to muscular force. This man was treated for twelve days by a splint with evaporating lotions to reduce swelling. Then Malgaigne hooks were applied; these were removed after two months, the swelling having then practically disappeared. It was noted that there was no bony union, and the patient was entirely disabled. An arthrotomy was then performed, the fibrous band of union was resected, and the two fragments were secured by two anteroposterior sutures. It was noted that the hooks had failed to grasp the smaller fragment. There followed bony union, but the patient remained practically completely disabled.

The next case was one of comminuted fracture due to a fall. The patella was found to be broken in seven places, but with very slight displacement; the lateral expansions of the ligaments were not involved, and there was very slight effusion of blood into the joint. A wire was passed completely around the patella, drawn tightly, and twisted, the twisted ends being hammered flat upon the surface of the patella. There was complete functional activity three months later.

The third case was that of a man suffering from an old fracture of the patella with a separation of the fragments of nearly two inches. A U-shaped flap was raised, the fibrous union resected, the fragments were approximated by means of hooks, and encircled by metallic suture. On removing the hooks there was an immediate separation of about one-fifth of an inch. Two bone sutures were then inserted, bringing the fragments in accurate apposition. Some months later this patient was discharged from the hospital completely cured.

In the next case, a recent fracture, the upper surface of the patella was exposed by a large U-shaped flap; the joint was cleaned, and the lateral ligamentous expansions were sutured by catgut, after which the fragments of bone were brought into apposition and the periosteum was secured by suture. This patient recovered rapidly and completely.

ANESTHESIA BY CHLORIDE OF ETHYL.

GAGET (*Revue de Chirurgie*, No. 8, 1900) notes that the first case upon whom he attempted general anesthesia by chloride of ethyl turned blue from asphyxiation. Four other cases were very difficult to anesthetize. Vallas, in commenting upon these cases, states that the anesthesia is extremely rapid, and that it is well suited for operations requiring a very short time for their performance.

OPERATIVE TREATMENT OF GOITRE.

Dr. J. COLLINS WARREN (*Boston Medical and Surgical Journal*, vol. cxliii, No. 26, 1900) states that the operative treatment of tumors of the thyroid gland appears to be indicated in rapidly growing tumors in young persons in whom the medical treatment has been ineffective. As soon as the tumor has reached a size sufficient to cause pressure symptoms the operation becomes urgent. It is in young married women under these conditions, he states, that he has performed the majority of his operations.

The operation consists either in the removal of a limited portion of the gland, such as an isolated lobe or a more or less independently growing adenomatous mass of solid gland tissue, or in the enucleation of a cyst.

The incision which Dr. Warren has adopted is U-shaped, one or both of the arms being used according to circumstances—usually it is not necessary to complete the entire sweep of the letter, as the lobe on the one side is smaller than on the other; a portion or the whole of the more normal lobe should be allowed to remain according to circumstances. The incision through the skin usually divides one or more large veins. They should be secured with forceps before division if possible, as they are liable to retract beneath the skin and to be overlooked in the final treatment of the wound.

In order to reach the surface of the tumor the edge of the sternomastoid muscle should be sought for, and that muscle, which is thin and flattened, must be drawn aside. Occasionally it is necessary to divide the sternohyoid and the sternothyroid and also the omohyoid muscles, and there is no harm in so doing, as they can readily be sutured after the extirpation if desired. These muscles can, however, be drawn aside, and the different layers of connective tissue covering the capsule are then divided. This releases pressure over the tumor, and it begins to rise up from the depths of the wound and become more superficial. When the capsule has been reached, care should be taken not to injure it with the knife, as the resulting hemorrhage is hard to control.

In order to lift the tumor from its bed the tissue holding down the upper and outer margin of the lobe should be clamped and

divided, the edge of the lobe drawn gently forward, and an effort made to secure the superior thyroid artery. The tumor can now be lifted easily forward and toward the median line in order to disclose the inferior thyroid artery. The recurrent laryngeal nerve lies in close contact with this vessel and is directly behind it. It is not readily found, and in securing the artery care should be taken not to clamp the surrounding tissues too generously, as the nerve may thus be included in the ligature. By keeping close to the surface of the tumor and avoiding wandering between outlying layers of connective tissue, this complication may be averted. The entire mass of the tumor is now reflected over to the opposite side of the neck, and the attachments of the gland to the anterior wall of the trachea are brought into view. In order to free these the knife must be used. The dissection may be continued to the opposite side of the neck, and the smaller lobe removed in much the same way as the larger one. Care should, however, be taken to leave a portion of the gland behind to avoid the production of an operative myxedema. The amount necessary for this purpose need not be large, and when he has occasion to include both lobes of the gland in the operation he has found that a mass about the size of an English walnut is amply sufficient for the purpose.

It is not, however, necessary to remove such a large proportion of the gland in the majority of cases, as a division of the lobe operated upon at the point of its junction with the isthmus is usually sufficient. In this case the opposite lobe either does not increase in size after the operation or grows gradually smaller.

There are many cases reported in which total extirpation of the thyroid gland has not been followed by myxedema, but this is accounted for by the presence of accessory glands near the arch of the aorta, at the side of the trachea, or between it and the esophagus, or near the hyoid bone. It is not justifiable, however, to count upon the existence of any such glands, and a portion of the thyroid gland itself should therefore always be allowed to remain.

All vessels should be tied with scrupulous care. The material Dr. Warren prefers for the purpose is fine silk, as it is much less likely to slip than any of the forms of animal ligature. The neck is so supple and movable a region that the chances of such a mishap are greater than elsewhere, especially when there is much vomiting during the recovery from the anesthetic. It is well, therefore, to take the precaution to give a subcutaneous dose of morphine either before or directly after the administration of the anesthetic to prevent vomiting and to keep the patient quiet. A tight dressing cannot be applied in this region, and the nurse should therefore be instructed to watch for vomiting and to exert gentle manual pressure upon the wound during the act. On one occasion, owing to a neglect of this precaution, Warren was summoned hastily an hour or two after the operation to arrest a serious hemorrhage, which, on opening the wound, appeared to have originated from a comparatively unimportant vessel.

The edges of the wound had better be brought together with silkworm-gut, and one provisional stitch taken at the most dependent point to allow a small gauze wick to be inserted as far as the deeper portions of the wound. The object of this precaution is not to avoid sepsis, but to prevent a distention of the walls of the wound by serum or blood-clots and thus avoid the danger of sudden pressure on the trachea. This danger will be greatly increased by tight bandaging. The dressing should therefore be so applied and should consist of such materials as will give support without causing pressure. For this purpose the horse-collar dressing may be applied, rigidity being given to the collar by paper or pasteboard; pressure and counter-pressure is thus exerted on the jaw and clavicles. Fixation of the neck and head may be secured by the application of the ordinary tin internal angular elbow splint to the neck, the head being secured firmly to the upright arm of the splint, while the horizontal arm is bandaged to the shoulder. The gauze wick should be removed at the end of twenty-four hours, and the stitches can ordinarily be removed a few days later; the wound edges can then be covered with cotton and collodion, all further bandaging being abandoned.

Enucleation is an operation which should be reserved for small solid adenomata or cysts which are easily separated from the surrounding gland tissue. Warren has not found hemorrhage troublesome in any of these operations. It is better, if possible, to avoid opening the cyst wall during its removal, for in large cysts if a vein be injured it is difficult to secure. The time has gone by when the surgeon should be content to open such a cyst and pack it with gauze.

The cyst should be attacked externally and not internally.

Resection of a large wedge-shaped piece of the gland on one or both sides has been recommended by Mikulicz. The remaining portions of the gland tissue are brought together by subcutaneous sutures. Reinbach reports eighty cases of resection by this method, with a mortality of 3.75 per cent.

Exophthalmic Goitre. — Dr. Warren operated upon but two cases of this disease, and his experience has not been encouraging. In the first case there was an exceedingly stormy convalescence due apparently to the absorption of the thyroid juice from the stump of the portion of the gland left behind. The temperature rose the first evening to 106° F. and the pulse to 202, but the wound healed by first intention. The patient has been from time to time since under Dr. Putnam's observation. Her health was only partly restored by the operation. In the second case the patient passed through several days of convalescence without bad symptoms of any kind. On the fourth day, however, during a sudden attack of tachycardia she died.

Warren has never tried division of the isthmus; it is possible that relief may be obtained from pressure upon the trachea in an otherwise inoperable case in this way. It is said to be followed by some atrophy of the lateral lobes. Unless the isthmus were well defined it would seem best not to adopt this method, as extensive incisions without extirpation might lead to various undesirable complications.

In regard to the mortality of the operation, in his own experience with benign goitre other than Graves's disease, the author has had but one death, and that was due to heart failure at the close of an operation for the removal of an enormous goitre of twenty years' standing. As a rule, goitres in this region of the world do not attain an exceedingly large size, and the operation for their removal appears to be one attended with little danger if the ordinary precautions above referred to are observed. Reverdin collected 6103 cases with a mortality of only 2.88 per cent.

Dr. Warren has never observed a recurrence of the tumor after operation, although Brunner reports cases collected from literature in which there were 31 per cent of recurrences, 18 per cent recurring on the operated side and 23 per cent on the opposite side.

He has never performed division of the cervical sympathetic. The operation is intended chiefly for the vascular form of goitre. Jonnesco reports ten cases operated upon by this method for Basedow's disease; six were cured and four improved.

Operations upon cases of aberrant goitre are reported from time to time. Hofmeister reports such a tumor under the skin of the breast. Dr. Warren has operated upon a thyroid growth between the base of the tongue and the epiglottis—the point of origin of the thyroglossal tract of His.

In regard to the anesthetic, he has always been able to use ether. Many surgeons prefer local anesthesia, and this is strongly recommended by Kocher when the pressure symptoms are strongly marked. Many formidable operations have been performed with cocaine anesthesia without causing suffering to the patient. A one-per-cent solution is sufficient for the purpose.

In advising the operative treatment of this disease it should be remembered that many cases yield to medical treatment. Kocher makes the somewhat surprising statement that ninety per cent of the cases which come into the hospital at Bern are so improved by medical treatment that operation is not necessary. He does not consider that thyroid extract gives any better results than preparations of iodine.

Since the thyroid treatment of goitre has been employed Warren has had comparatively few cases sent to him for operation, but he has seen quite a number in which the treatment has produced no effect. Thus far he has failed to see any beneficial effects himself in the use of the drug, and he is not personally cognizant of a single case in which it has effected a permanent cure.

A CASE OF ACROMIOCLAVICULAR DISLOCATION AND ITS TREATMENT.

Dr. Bernard E. Henrahan (*New York Medical Journal*, vol. lxxiii, No. 1, 1900), has instituted the following method of treatment, which has worked well in his hands, and seems to meet all requirements. The application may be set forth in the following case:

A. S. B., aged thirty-eight, of strong muscular development, while in a barroom brawl met with a dislocation of the acromioclavicular articulation. A temporary dressing was applied, and the patient transferred to the writer on the following day. Upon examination there was found considerable swelling,

yet not sufficient to mask a marked prominence of the outer end of the clavicle; the acromion could not be felt, and the shoulder was depressed and approximated to the middle line of the body. There was also an apparent lengthening of the right arm. Since it was necessary to determine if there was not a fracture associated with the luxation, and as the patient suffered considerably, an anesthetic was deemed advisable. No fracture or other lesion was found. The writer acknowledges his indebtedness to Dr. Henry H. Smith for kindly advising and assisting in the reduction. A wedge-shaped pad of absorbent cotton rolled in a towel was placed under the arm, the apex was pressed firmly into the axilla, and a Desault bandage applied. This kept the bones in position, and the patient complained very little of pain from the tight dressing. The dressing was reapplied on the seventh and fourteenth days; on the twenty-first day it was discarded altogether, and a spica of the shoulder substituted for one more week. All dressings were then removed. Some pain was felt on the right side of the neck after the removal of the dressings; this disappeared on massaging the parts once in two or three days for several weeks, and the patient is now in excellent condition, having full use of his arm, without any pain or deformity in the shoulder.

The good results obtained in this case and the simplicity of the application would recommend the method as a suitable one in the treatment of this refractory lesion. A method of treatment introduced into the Jefferson Hospital by Prof. J. H. Brinton, of Philadelphia, is of interest in this connection. It consists of a pad placed in the axilla, a folded towel of heavy texture placed over a broad area at the site of injury, and a strap two inches wide thrown across the shoulder and under the elbow. A pad of absorbent cotton prevents too great pressure on the elbow. The strap is drawn as tightly over the shoulder as the patient can bear; the point where greatest pressure is exerted is between the articulation and the root of the neck, so as to control both the scapula and clavicle, and the trapezius muscle, without causing the pain of pressure directly over the site of injury. A single retaining bandage passed under the opposite axilla prevents the strap from slipping off the shoulder. The placing of the wedge-shaped pad under the arm with the broad base downward makes it possible to exert pressure in the line most desirable, upward, outward, and backward, raising the glenoid cavity and with it the scapula, while the clavicle is pushed downward by the same force, and thus prevented from again riding up over the acromion. A roller bandage around the chest anchors the arm and elbow to the side, the buckle of the strap not being covered in, so that the strap can be tightened, if necessary, without disturbing the rest of the dressing.

THE INDICATIONS AND AFTER-RESULTS OF LIGATURE OF THE UTERINE ARTERIES IN CASES OF MYOMA OF THE UTERUS.

After giving a description of the anatomy of the uterine arteries, GOTTSCHALK (*Medical Chronicle*, vol. iv, No. 2, 1900) points out that ligature of the uterine vessels close to the cervix uteri, and near the point of division of the main artery, is an operation quite devoid of danger. He has practiced it for many years with excellent results, in selected cases.

The technique consists in detachment of the bladder from the cervix and lower portions of the broad ligaments. These ligaments, forming the vascular pedicle at each side, are now ligatured with silk in three or four sections. This operation is well borne by extremely feeble and anemic women, who would certainly succumb to a radical intervention. There is no danger of the nutrition of the uterus being impaired after this operation.

This procedure is by far the most efficient of the palliative methods for hemorrhage caused by myomata; it will reduce obvious tumors to small nodules often hardly recognizable to touch.

The cases, however, must be carefully selected, and Gottschalk gives the following general principles:

(*a*) The most favorable tumors for this method are interstitial myomata developed in the lower portion of the body of the uterus. Tumors at the fundus uteri and intraligamentous growths are not successfully treated in this way.

(*b*) Age of the patient. The nearer the patient is to the menopause the greater are the chances of a radical cure by this method.

(*c*) Size of the tumor. The operation is suitable for all tumors not larger than the volume of a fetal head at term.

(*d*) The previous history. If there is any evidence of peritonitis having occurred, and

the presence of adhesions can be made out, this operation is not so likely to succeed, inasmuch as adhesions to the omentum containing vessels may be present, and thus vitiate the results. The operation must be preceded by dilatation of the cervix, preferably with laminaria tents, in all cases. If a submucous myoma is detected it is necessary to completely extirpate the tumor when projecting into the cavity of the uterus.

Goullioud has had excellent results from forcipressure of the uterine arteries, and quotes several cases of large fibroids filling the pelvis and reaching as high as the umbilicus, in which obliteration of the uterine arteries has led to very marked diminution in size, and has entirely checked the profuse hemorrhage. In some cases, operated upon six years ago, the menstrual periods have been regular and normal since. The diminution in the size of the uterine cavity is very marked: thus in one case the length of the cavity diminished from 4½ inches to 2¾ inches, and in many others an equally marked diminution was observed.

The operation is also of great value in cases of hemorrhagic metritis after failure of curettage.

Goullioud has used forcipressure of the uterine artery in preference to ligature as being more simple and equally efficacious. It is of great importance to separate the bladder anteriorly and laterally, and in some cases the peritoneum posteriorly should be separated so that the base of the broad ligaments may be completely isolated.

SUBDURAL HEMORRHAGE, WITH CONVULSIONS; TREPHINING; RECOVERY.

RAMSAY (*Intercolonial Medical Journal of Australasia*, No. 10, 1900) reports the case of a man of fifty-four who was found insensible, apparently bent posteriorly, from a fall. In an hour or two he became excited in speech and manner, and was believed to be actually drunk. This excitement continued for about two days, and general convulsions began. The fit began by the respiration falling to 12, and the eyeballs turning up, and to the left. The left side of the face commenced twitching convulsively, then the upper and lower extremities; and the rest of the body in this order, except the right side of the face, became involved in general clonic spasms after a short tonic spasm. Between the attacks the right arm was held rigid, whilst the left arm and leg were flaccid. The breathing became of the typical Cheyne-Stokes character. After forty attacks the patient was trephined over the right Rolandic fissure. The dura did not markedly bulge, but upon being opened revealed a large black clot on the surface of the brain. Two convulsions occurred within an hour after operation, but thereafter there were no more.

Upon recovery he was discharged, with thick speech, and slight paresis of the left side of the face; the left hand and arm improved. Later he had two convulsive seizures. There was an improvement in the general intellect.

A NEW METHOD FOR CLOSING SUPERFICIAL INCISED WOUNDS.

Dr. ARTHUR G. BRETZ (*Medical and Surgical Monitor*, December, 1900) believes the method very simple, and describes it as follows:

Given a wound on the forehead, for instance, after cleansing and preparing it in the usual way, dry the adjacent surface thoroughly and then apply a piece of adhesive plaster on either side of the wound, the size of the plaster and the distance from the edge of the wound to be determined by the length and character of the same. However, it should be of sufficient width to give ample area for adhesion, which should be not less than one-fourth of an inch and not nearer the wound than one-fourth of an inch. Raise the inner edges of the adhesive strips and insert interrupted sutures through them instead of through the skin, draw together, and tie. This coapts the edges of the wound even better than stitches through the skin. The wound is then dressed in the usual way.

First, it prevents the painful process of inserting stitches, of which all patients have such a dread.

Secondly, it does away with the possibility of stitch-hole abscess and the trouble caused by particles of sutures being left in the wound on removing the stitches.

Thirdly, it prevents the stitch-marks, which always add to the unsightliness of the scar.

Fourthly, in cases of wounds inflicted by a blunt instrument, which caused bruised tissue immediately surrounding the wound, there are no stitches to tear out the friable tissue.

There is no puckering between the stitches; the first stitches coapt the edges, and the others make the closure permanent. There

are many other advantages besides those enumerated above. In the case of semilunar or angular wounds, if the central stitch is wrongly located, it may be easily taken out and replaced. The wound is open for inspection and drainage. In the case of superficial wounds this method is especially advantageous. When the wound is united the adhesive strips should be removed by raising them at their outer edges and pulling toward the wound, or if for any reason it is deemed desirable the stitches may be removed and the adhesive strips remain for a short period. Furthermore, if it is thought best in order to prevent the slight pressure of the sutures on the surface of the wound, the adhesive strips may be placed a little farther from the edges of the wound, and a folded strip of iodoform or other gauze placed beneath the sutures on either side of the wound. This does not seem to be necessary. In using this method it is necessary to have the best quality of rubber adhesive plaster. If any difficulty should arise, it would not be during the operation if the proper precautions are observed, and the operator possesses ordinary adeptness; and as far as a later period is concerned, it is evident that the mechanical pressure of the dressing adds to its firmness and permanence. In case the surrounding field is a hairy surface, it is probably unnecessary to state that it should be closely shaven.

INFLAMMATION OF THE GALL-BLADDER AND BILE-DUCTS.

DELATOUR (*Brooklyn Medical Journal*, February, 1901) notes the presence of jaundice in some cases of chronic cholecystitis, and its absence in other cases, depending largely on the seat of the inflammation. Pain is frequently a marked symptom, and not infrequently is of the same type as that which accompanies gall-stones. In this instance it is produced by the presence of a thick, ropy mucus, which blocks the bile-ducts as completely as will a calculus.

The treatment consists of regular exercise, regulation of diet, possibly abdominal massage, and the use of salines, which may bring about a cure. If a fair course of this treatment fails to relieve the symptoms and the periodic attacks of pain continue, then surgical intervention is called for. Simple cholecystotomy with drainage will in these cases effect a cure. The ducts may be washed with a warm solution of sterile water injected through the opening in the gall-bladder.

Croupous choledochitis and cholecystitis may exist as an extension of a croupous enteritis, and a membrane develop in the bile passages and produce attacks of colic resembling biliary colic.

Diagnosis from cases of gall-stone colic can only be made by careful examination of the feces.

Should the attacks continue after the cases have been treated as membranous enteritis cases, the gall-bladder should be opened and drainage established. A cure will usually follow.

Suppurative cholecystitis is, as a rule, associated with gall-stones, but may be due to the presence of tumors or typhoid infection. In empyema of the gall-bladder the infection varies in intensity, so much so that the cases have been described as simple empyema of the gall-bladder and phlegmonous cholecystitis.

In simple empyema there is usually first the history of the presence of gall-stones, followed by a more or less sudden onset of fever, with chills in a fair proportion of cases. Loss of appetite, coated tongue, and tenderness over the gall-bladder are nearly always present. Jaundice is sometimes present, but more frequently absent.

If there is much distention a tumor will be found projecting just below the lower edge of the liver, about opposite the ninth rib.

If not operated on the pus may empty itself directly through the abdominal wall, or at the umbilicus after following along the suspensory ligament of the liver, or into the stomach, transverse colon, or cæcum.

For this condition the only plan of treatment is cholecystotomy.

The symptoms of phlegmonous cholecystitis are sudden pain, acute, and accompanied by tenderness over the region of the gall-bladder. Temperature is no guide. There is a rapid and feeble pulse, and the respiration becomes marked. Tympanites and vomiting rapidly appear in most cases, and are so persistent that the case may seem to be one of acute intestinal obstruction. Jaundice is not a constant symptom.

Prognosis, especially in those cases where gangrene has developed in all the layers constituting the walls of the gall-bladder, is usually very grave.

In diagnosis it is to be differentiated from appendicitis by the location of the pain and tenderness.

Treatment consists in relieving pain by morphine and hot applications over the re-

gion of the liver, light dieting, and careful watching of symptoms. If the disease progresses, operation should be immediately advised.

Gangrene of the gall-bladder is a further stage of phlegmonous inflammation.

The operative treatment of all cases of inflammation of the gall-ducts and gall-bladder is for the purpose of drainage.

Cholecystotomy or opening the gall-bladder is performed as follows:

After proper preparation of the field of operation, an incision about four inches long is carried from the ninth rib downward along the outer edge of the right rectus muscle. The abdomen is opened, and in the fissure along the free edge of the liver is seen the tip of the gall-bladder.

After exposing the gall-bladder the finger should explore its surface, and the cystic and common bile-ducts to the duodenum, to determine the presence and location of calculi. Isolation of the gall-bladder is the next step, together with protection of the general peritoneum with large gauze pads to absorb all infective material. After incision of the gall-bladder, the muco-pus with any calculi is removed. Thorough search is now made for any remaining stones. Sterilized water may be injected through the common duct to demonstrate its freedom from obstruction.

A drainage-tube is then sewed into the gall-bladder opening, and is pushed inward so as to invert about one-fourth or one-half inch of the peritoneal coat, and around the base of this inverted truncated cone a purse-string suture is passed so as to hold it in position. The abdominal wound is closed after proper cleansing of the abdominal cavity, except at the point of exit of the drainage-tube. A plentiful dressing of absorbent gauze is now applied, to be changed as often as required.

In all cases of empyema of the gall-bladder, and even in simple inflammation of the bile-ducts, the opening in the gall-bladder should not be closed at the primary operation, but drainage is necessary for at least two weeks.

The mortality of the operation is practically nothing. The cures are permanent.

METHYL SALICYLATE IN THE PAINFUL NOCTURNAL ERECTIONS OF GONORRHEA.

BARATIER (quoted in *New York Medical Journal*, March 16, 1901) advises, for painful nocturnal erections in gonorrhea, warm baths, copious draughts of Vichy water, and anointing of the penis with the following ointment:

℞ Methyl salicylate, 1 part;
Petrolatum, 10 parts.
M.

After the inunction a thin layer of wadding should be applied to the member, and the whole covered with adhesive taffeta.

Reviews.

PROGRESSIVE MEDICINE. Volume I, March, 1901. Edited by Hobart Amory Hare, M.D., and H. R. M. Landis, M.D.
Philadelphia: Lea Brothers & Co., 1901.

We print as follows the publishers' notice of this quarterly:

"The first volume of the series of 1901 of this most valuable quarterly is replete with matter of the most practical nature.

"The first section, by Dr. Da Costa, deals with the Surgery of the Head, Neck, and Chest. The high standard of excellence which has characterized the contributions of this writer in previous volumes is fully maintained. Special attention is called to the articles on plastic operation about the face, surgery of the lungs, and the most recent methods of dealing with pericardial effusions.

"In his article on the Acute Infectious Diseases, Dr. F. A. Packard has devoted much space to a careful consideration of the important subject of typhoid fever. In view of the immense amount of material which has accumulated during the past year concerning this disease, the writer is to be especially commended upon the compact form in which he has presented the matter without neglecting any point of importance.

"Dr. Crandall has given especial attention to the treatment of Disorders in Childhood, and has added to his section a most valuable consideration of the practice of surgery upon children.

"Dr. Logan Turner contributes the article on Laryngology and Rhinology. Malignant diseases, and tuberculosis of the throat and nose, are among other subjects particularly considered.

"The section on Otology, by Dr. Randolph, is essentially practical. He devotes much space to the diagnosis and treatment of the inflammatory diseases of the ear.

"Every article evidences the care used in its preparation and the research and study of the several authors."

A MANUAL OF THE DISEASES OF CHILDREN. By John Madison Taylor, A.M., M.D., and William H. Wells, M.D. Second Edition, Thoroughly Revised and Enlarged.

Philadelphia: P. Blakiston's Son & Co., 1901.

This Manual of the Diseases of Children is now one of the large works upon this branch of medicine, being an octavo of more than 850 pages. It is printed on heavy paper, and the printers' work is most excellently done, as the text is easily read and pleasant to the eye. The facts which are stated in the text are correct, and the positions taken by the authors in regard to various points in dispute seem to us judicious and well considered. We have read with particular interest what the authors have to say in regard to the employment of diphtheria antitoxin, and we are glad to notice that they insist that in suspicious cases antitoxin must be administered without waiting for a bacteriological report of the findings in the throat. Perhaps it is also well to emphasize that as a rule the false membrane which is found in the pharynx in a case of scarlet fever is due to the streptococcus and not to the microorganism of diphtheria. As might be expected from the fact that Dr. Taylor has seen a good deal of nervous diseases, a large amount of attention is given to the nervous affections of children.

The book is evidently largely composed of the views of others in addition to the personal views of the authors, and the names of other investigators are constantly mentioned in its pages. We do not think that the illustration on page 328, showing the various conditions of the blood in disease, is sufficiently like what is seen on the stage of the microscope to be of very great value. The book can be recommended as a safe and reliable guide to the study of diseases of children, but is not of course as exhaustive as the books of Dr. Holt or Dr. Rotch.

PULMONARY CONSUMPTION, PNEUMONIA, AND ALLIED DISEASES OF THE LUNGS. By Thomas J. Mays, A.M., M.D.

New York: E. B. Treat & Co., 1901.

The object of this publication, we are told by the author in his preface, is to more widely diffuse the views which he has to express in regard to the etiology and pathology of the various diseases which he considers. He tells us that the fundamental concepts of the work may be formulated into the following propositions: First, that pulmonary phthisis in the majority of cases is primarily a neurosis, and that the pulmonary disintegration is secondary; second, that any agent, influence, or condition which undermines the integrity of the nervous system will engender pulmonary phthisis, or some other form of pulmonary disease; third, that the only remedies of value in the treatment of pulmonary phthisis are those which appeal to, and act through, the nervous system; fourth, that of special value in the treatment of pulmonary phthisis is the counter-irritant action of nitrate of silver introduced hypodermically over the vagi in the neck; and fifth, that acute pneumonia, and other forms of acute pulmonary disease, are closely affiliated with disorder of the nervous system.

It seems hardly necessary for us in the year of grace 1901 to write a review of a book which is based upon ideas of pathology which are so completely at variance with those which are universally recognized as correct by all intelligent workers in this field. It may be possible for those who have not attended post-mortems and examined tubercular lungs, and for those who have not followed the studies which have been made and which prove that the bacillus of tuberculosis is the cause of this disease, to build up ideas at variance with what such investigations show; but, on the other hand, it is impossible for any one to reach conclusions such as are here presented in this book, unless perchance he is carried away by an enthusiasm which is worthy of a better cause. For a considerable period of time Dr. Mays has recommended injections of nitrate of silver in the tissues overlying the pneumogastric nerves in the treatment of pulmonary tuberculosis, and he claims that he has gotten extraordinary results. We have yet to see a case, which was proved to be tubercular, before the treatment which was cured by this method. It is true that Dr. Mays has presented some patients who have gained in weight and who in other respects seemed somewhat better as to their general health after this treatment than before it. But none have been shown, so far as we know, that were distinctly tuberculous before the treatment was instituted, which have obtained any permanent results from its employment; and temporary results, when new therapeutic measures are employed in the treatment of consumption, are well known to occur by reason of the mere novelty of the method.

Dr. Mays has also in this book, by citing a vast number of cases reported by other authors, sought to prove that injuries of the pneumogastric nerve are followed by pulmonary consolidation and other lesions which are in one sense similar to those changes which take place in tuberculosis. He has also cited the influence of other causes, notably the action of various poisons, in the production of pulmonary lesions, and has quoted author after author to prove the influence of this nerve upon the maintenance of pulmonary nutrition. No one can deny that the pneumogastric nerve holds extraordinary relationship with the lungs, and that its function in connection with these organs is very various. But every one who has studied the subject at all can take issue with Dr. Mays when he asserts that pulmonary tuberculosis is practically a neurosis of the vagus nerves.

Every one who has had experience as an editor will remember occasions when books have come to him for review which he has been glad to receive because they seemed to contain so much that was good that it was a pleasure to speak well of them. He has also received books which have seemed to him so faulty in theory or method as to make it improper for him to commend them to his readers. This book, we think, belongs to the latter class. It is so entirely at variance with modern medical thought that while we would be only too glad to speak of it favorably we are forced to point out the fallacy which we believe underlies its existence.

THE HISTORY OF MEDICINE IN THE UNITED STATES. With a Supplemental Chapter on the Discovery of Anesthesia. By Francis Randolph Packard, M.D.
Philadelphia and London: The J. B. Lippincott Company, 1901.

In the preparation of this exceedingly interesting book of nearly 550 pages, Dr. Francis Packard has provided for his fellow practitioners a most interesting and valuable historical work. As he well says in his preface, it is to be hoped that this book will have the effect of stimulating others to work in the same direction, and he points out that although many books and essays have been published regarding the medical history of different parts of the United States, he knows of no other effort in the direction of a general history of early medicine in these parts. It is not often that one who is actively engaged in executive duties connected with a public charitable institution, and is also engaged in the practice of medicine, feels that he has the time or the energy to devote to this form of research, yet how often it happens that because of the lack of some such compilation the profession believes that it has discovered new facts which in reality were well known to its earlier practitioners many years before. We well remember being told on one occasion, in a private conversation, by Dr. Alfred Stillé, who was himself fond of literary research, that if physicians would but study the history of medicine, therapeutics and practice, they would be prevented from making mistakes which their predecessors had made, and would be able to advance themselves much further along the road of learning; or, in other words, that in the endeavor to seek things which were new they often ignored things which were old, equally valuable, and much more tried.

Dr. Packard's book is composed of eleven chapters. The first deals with the medical events connected with the early history of the English colonies in America, and the second and third with epidemic sickness and mortality in North America from its earliest discovery by the English until the year 1800. The fourth chapter deals with medical education before the foundation of medical schools; the fifth with the earliest medical schools in the United States; while the sixth deals with the medical profession in the war of the Revolution. Then follow other chapters upon the earliest hospitals founded before the year 1800; pre-Revolutionary medical bibliography and medical legislation in the colonies; and the closing chapter dealing with a matter much more recent in point of time, namely, the discovery of anesthesia. A very considerable number of illustrations are also found in the volume, most of them being portraits of well known medical men of the early days.

PANAMA AND THE SIERRAS. A Doctor's Wander Days. By G. Frank Lydston, M.D.
Chicago: The Riverton Press, 1900.

Dr. Lydston has written a small octavo volume which he dedicates to "The Stay-at-homes," and in which he considers divers experiences which he has had in various portions of Central America and Mexico. It is written in a light vein and is designed to employ an evening hour rather than to afford intellectual pabulum. Numerous illustrations are to be found between its pages of spots which have seemed to the author to be of considerable interest.

THE MEDICAL-LEGAL MANUAL. By W. W. Keysor, M.D.

Omaha: The Burkley Printing Company, 1901.

In a small octavo volume of a little over 300 pages Dr. Keysor embodies the lectures which he has given on Medical Jurisprudence to the students of the Omaha Medical College. Much of the information that he gives is exceedingly valuable. The book does not pretend to be as complete as some of the larger and better known manuals on this subject, but on the other hand affords a ready reference for physicians and dentists who desire medical-legal information.

THE TREATMENT OF FRACTURES. By W. L. Estes, M.D.

New York: International Journal of Surgery, 1900.

Estes's large experience in railroad surgery and the admirable results which he has obtained in his practice well fit him to write a book upon the therapeutics of injuries to the bones. He devotes the opening chapter of his work to first aid in transportation of cases of fracture. He favors plaster-of-Paris splints, and believes that when a properly fitting retentive apparatus of this kind has been applied to a limb, no appreciable atrophy ought to occur during the treatment of an ordinary simple fracture of a long bone. He believes the proper time for massage is two or three weeks after fracture in bones of the upper extremities, and four or five weeks after fracture in bones of the lower extremities.

Estes advises against force to reduce fractures of the bodies and pedicles of the dorsal and lumbar vertebræ, unless there is specially marked lateral displacement, in which case manual pressure may be used directly over or about the displacement. In addition, a gradual bending of the column is made by an assistant drawing the shoulders and pelvis in the direction opposite to the displacement.

Except dorsal decubitus on a firm air mattress, no fixation splints are necessary. Estes states that the only apparently perfect result he has ever obtained after fracture of the clavicle in muscular men was in a case where no apparatus at all was applied for the retention of the fractured bones. The man had other serious injuries which compelled him to lie quietly in bed.

He has finally settled upon the Sayre adhesive strap method as the best.

The section devoted to fractures of the femur is one of exceeding value.

In the treatment of fracture of the patella, the operative method by open incision is commended.

The book closes with a section devoted to compound and complicated fractures, showing how excellent are the results that may be obtained by well directed conservative treatment, even in cases of very extensive injury.

Representing as it does beliefs founded on careful study and a large experience, this book is one which should prove valuable to every practicing physician.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

The Clinical Society devoted two recent meetings to a discussion of the epidemic of typhoid fever in South Africa. The discussion was initiated by Dr. Tooth, who had gone to the seat of war on the staff of one of the private hospitals. He adduced very strong evidence to show that at any rate the origin of the epidemic lay in the water-supply at the Modder River, and that water too had been an important agent in the dissemination of the disease. Human nature—manifested in its naked strength in the person of Tommy Atkins—would assert itself in spite of the most approved sanitary precautions, and the untreated river water found more favor as a beverage than the waters of purification. He regarded the sand storms as perhaps a more important factor than the water in spreading the disease, inasmuch as they carried hither and thither the particles of dried enteric stools and urine that had been deposited by men in latrines and other places in the early stages of the disease. Flies too played their part; in numbers, favored by the quantity of refuse and excreta, they soon amounted to a plague; they seemed to be peculiarly attracted to enteric patients on the one hand, and to every article of food on the other, directly conveying the disease to the previously healthy. Dr. Tooth suggested that the decline of enteric fever in the winter months may be due not alone to the fall of temperature below the degree most congenial to the bacilli, but also to the disappearance and death of flies, which are peculiarly sensitive to changes of temperature. Further, in camp life where personal cleanliness is an impossibility, one must not lose sight of the cer-

tainty of personal infection from man to man.

There is a good deal of evidence to show that antecedent diseases, more particularly those of the intestinal tract, played an important part in determining an attack of enteric fever, paving the way by lowering the local resistance of the tissues. Dysentery and gastroenteritis—the one or the other—were almost universal; in themselves these conditions were usually readily remediable, but for this very reason were apt to be neglected by the sufferers, so opening the door to more serious enteric trouble. Experimentally, indeed, it has been shown that after inoculation with typhoid bacilli, when the initial reaction has subsided, attenuated bacilli may be found in a state of quiescence at the seat of inoculation; but if then a dose of toxins of other organisms be introduced into the circulation, the typhoid bacilli may again acquire virulence and reproduce the disease.

It is hardly realized that whatever precautions are taken to prevent the spread of the disease, in the circumstances of war, they can be but partially effectual. It is useless to purify water if men prefer it unpurified; one must go a step further back and educate the men. With latrines, too, especially of the open trench variety, however carefully used, it is impossible to prevent them being a source of contamination. Dr. Tooth prefers the bucket system to the open trench; the stools can then be disinfected with mercuric perchloride solution, mixed with sawdust, and burnt.

Dr. Tooth presented a number of statistics of preventive inoculation. I will not trouble you with details of these, as in previous letters I have already referred to the matter, but his general conclusion based on these and on his experience is that the incidence on the inoculated is distinctly less, and that the disease takes a milder and more benignant course. The importance of this matter in the case of a campaign is of course enormous, as we cannot ever deal adequately with the local causes of origin and dissemination, while we can present a uniform resistance, if any form of artificial immunity be elaborated.

On the question of treatment Dr. Tooth had little new to say. He combated the outcry of the laity for hospital buildings in preference to tents in the open air. The now generally accepted principle of a liberal supply of nutriment except in graver cases found favor throughout, and alcohol either not at all or in small medicinal amount. His experience that the obstinate headache and insomnia of typhoid usually yielded readily to five-grain doses of phenacetine is certainly more fortunate than that of physicians at home. In the care of the mouth and tongue he recommends a mixture of potassium chlorate and sodium bicarbonate given three times a day as having a remarkable effect. This it will be remembered is one of the most beneficial effects of Yeo's euchlorine mixture. I hardly feel that the post-mortem room records would confirm his contention that the diarrhea is more often due to ulceration of the colon than to generalized enteritis, and the fact that he found it yield so readily to chlorodyne with carbonate or salicylate of bismuth I should take as further evidence of this. Trouble was seldom experienced from tympanites, which was successfully treated by boracic injections. It is notoriously difficult to determine whether drugs have any influence on the arrest of hemorrhage, as spontaneous cessation is the almost invariable consequence. Therefore the apparent utility of the routine treatment by a mixture of half a drachm of each oil of turpentine and tincture of hamamelis with three minims of digitalis tincture, given every two hours, or alternately every hour with a drachm of distilled extract of witch-hazel, should be guardedly received.

In the discussion that ensued upon the communication, Professor Wright, of Netley, gathered together the scattered groups of statistics of typhoid inoculation that he has published from time to time. No fair mind can fail to be impressed with the suggestiveness of his figures, all of which are carefully checked by simultaneous statistics of the uninoculated.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Doctors in France are heavily taxed. They have to pay what is called a *patente* just as if they were engaged in business, and this *patente* is equivalent to about one-sixteenth of the rent they pay. Moreover, if they have a house outside their office, they are also obliged to pay for the latter. In case they practice a few months in a watering-place, they are obliged to pay where they practice, and also where they live the rest of the year. Professor Pozzi and Dr. Pedebidou, who are

senators, have proposed an amendment to the law now in force, whereby a physician will only pay for the habitation located in the town where he practices. Dr. Labbé, the celebrated surgeon, goes even further, and intends to ask that the amount of tax should be based exclusively on the rent of the house or office where a physician practices.

At a recent meeting of the Society of Surgery Dr. Ricard gave an account of an operation he had carried out for the removal of a foreign body in the trachea. In this case it was a woman who had been tracheotomized several years before, and the cannula, which she had been obliged to keep, got unsoldered and slipped down as far as the bifurcation. Dr. Ricard had the patient radiographed and was able to locate the cannula. He made a U-shaped incision in front of the sternum and sawed away the upper part of the bone, but though he opened up the bronchial tube he was unable to find the foreign body, and the patient died ten days later. This happened last November, and he cited a similar operation performed by Dr. Milton, of London, last January. The latter sawed the sternum vertically, and was therefore unable to operate so readily. His patient died of acute septicemia a day or two later. Speaking of these cases, Dr. Ricard said he considered it advisable to make a large incision, remove a part of the sternum, and follow out Dr. Milton's suggestion as to lifting up the trachea with a hook. One source of difficulty in carrying out this operation is the extreme mobility of the different parts exposed. Dr. Quénu remarked that he considered it would be more advantageous to undertake this operation through the posterior mediastinum by partial excision of the fourth, fifth, and sixth ribs. The pleura could be readily pushed aside, and there being much less important vessels, the operation would not be so dangerous. An incision of the trachea could be more readily carried out through its membranous part.

A recent thesis on congenital alcoholism has been passed before the faculty of Paris, and in it the author, Dr. Nicloux, shows how alcoholism can act even at the moment of conception. Experiments were carried out in the laboratory of general physiology at the Museum of Natural History, and also at the Clinique Tarnier. Milk can contain a certain amount of alcohol, the ovary may be impregnated to a certain extent, and lastly, the spermatozoid may also feel the influence of the alcohol absorbed. Alcoholic heredity is therefore easily explained, with its results, such as abortion, premature delivery, infantile mortality.

Anesthesia by intra-arachnoidean injections of cocaine has not been accepted by all authors, and Dr. Reclus, professor of clinical surgery, does not favor the use of it in this manner, though he has been using it in a great many operations when applied locally. In a recent communication made to the Academy of Medicine, he showed the various arguments that could be adduced against the use of cocaine. In a certain number of cases one cannot penetrate into the arachnoid, and chloroform is ultimately found necessary. In other cases the needle gets stopped up, or anesthesia does not take place. Then it may only come on after a certain space of time, or disappear very soon. Trembling, nausea, vomiting, which are seen once in every two or three cases; paralysis of the anal sphincter, with consequent involuntary defecation; temporary paraplegia; intense headache, lasting several days — these are some of the consequences of the use of cocaine. Syncope may supervene, and the patient is sometimes brought out of it with difficulty. There are even cases where death has taken place. There are certain cases, like those of Julliard and Tuffier, which may not be attributed with certainty to the cocaine, but in those of Humbert, Dumont, Jonnesco, and Ruiz, it was certainly responsible for a fatal result. Dr. Reclus ended his speech by saying that he did not think it advisable to abandon as yet the older methods of anesthesia.

Dr. Reclus's report to the Academy of Medicine gave rise to some discussion, and several of his colleagues qualified it as being of reactionary tendencies. In answer to this he wrote a letter to the *Presse Médicale* in which he said that he did not reject arachnoid injections, but that he wished to have it clearly demonstrated that they were more harmless than narcosis by ether or chloroform. He also sent a letter he had just received from Bier acknowledging the receipt of his report. Dr. Bier wrote in the following terms: "Most honored colleague—My best thanks for the report you made to the Academy of Medicine. I am glad to find that I can agree with you, the exponent of the use of cocaine as an anesthetic. As it is used in France, the method cannot be employed. It was not really necessary to perform 1200 operations; the first six sufficed. Such enthusiasm seems

to me inexplicable when so many accidents have happened. I would recommend such operators injecting cocaine into their own arachnoidean canals as I have done; they might then change their minds. After this experiment I decided to abandon this method, but I continued my investigations, and I believe I can now recommend a method which offers no danger. This method will be explained at the next Congress in Berlin on the 11th of April." Dr. Reclus adds that he hopes his colleagues will suspend all investigations until we have a method offering no danger.

Dr. Th. Tuffier, who is in France the champion of this method, published in the *Presse Médicale* of April 6 a letter on this same subject. In it he said that Corning's and Bier's method was blind, uncertain, and dangerous, and for his part he would never have dared to apply it to man. It was not necessary to collect 1200 observations; it sufficed to read the results of the first six. The technique used, the misadventure which happened to one of the authors when cocaine could not even be injected, would have sufficed to calm down Dr. Tuffier's enthusiasm and make him refuse to have it applied to himself.

It is, according to Dr. Tuffier, quite different if one considers his own method, which is sufficiently simple to have obtained the favor of his colleagues in all lands, and Dr. Tuffier has seen that both physicians and accoucheurs have adopted it. At least a hundred of these injections are done each day, and every week Dr. Tuffier is the recipient of some essay on the subject. If certain surgeons are too audacious, Dr. Tuffier does not care to take the responsibility of their failures or their scorn; but, whenever his technique has been rigorously followed out, he begs to have complete statistics published, for which he will be responsible. "We shall see," adds Dr. Tuffier, "if it is necessary to wait till the 11th of April to have at last an analgesic method without danger for the patient."

The Eighth International Congress against alcoholism will be held in Vienna from the 9th to the 14th of April, and the following subjects will be treated: Medical manifestations of alcohol (diseases caused by alcohol, immediate action on the body, heredity); and social manifestations of alcohol (causes: the manner of living, the work, the number of wine shops, etc.; results: civilization and social progress arrested, criminals on the increase). On the other hand, the means of diminishing alcoholism will also be studied, such as: Official measures: heavy taxes on the places where alcoholic beverages are sold, special asylums for drunkards, public lectures; and then private measures, such as temperance societies, cooperative societies, clubs and coffee houses where liquors will be strictly forbidden.

At the meeting of the Academy of Sciences on March 18 Professor Robin and Dr. Binet spoke of a symptom which they had observed in tuberculous patients, and which might be of use in making an early diagnosis of consumption. They had examined 392 patients, and had found that the chemical conditions of the air breathed were modified in a notable manner. The difference was quite noticeable, it being as much as 110 per cent increase in women, and only 80 per cent in men. This symptom was observed not only in the acute forms of the disease, but also in the chronic forms, and it was more or less apparent according to the changes produced by the disease. In Pott's disease, tuberculous pleurisy, and tuberculous adenitis, this symptom could be detected, but not in peritonitis, tuberculous meningitis, or lupus. It cannot be admitted that this exaggeration in the respiratory functions is the result of an attempt on the part of the organism to defend itself, as it exists in subjects who have tuberculous parents.

Dr. Laveran, who is so well known for his works on malaria, read a report recently at the Académie de Médecine on the frequency with which worms are found in the Chinese population, and on their influence in producing appendicitis. The report was made out by Dr. Matignon, who was physician of the French legation at Peking during the recent insurrection. It seems that seventy-five per cent of the Chinese suffer from worms; amongst children ninety-eight per cent have them; whereas amongst Europeans only one-quarter show signs of having them. Notwithstanding the extreme frequency of this condition, Dr. Matignon did not meet with a single case of appendicitis either amongst the Chinese or the Europeans he was taking care of. In the northern part of China appendicitis is almost unknown, although the mass of the population is strictly vegetarian. Even at Peking very little meat is used, and Dr. Matignon considers that the infrequency of appendicitis is in part due to the regular life most Chinese lead, and to the absence of any disturbance of the digestive functions.

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Original Communications.

*RESECTION OF A LARGE PART OF THE CHEST WALL FOR SARCOMA; USE OF FELL'S APPARATUS FOR ARTIFICIAL RESPIRATION; LATE CONTINUOUS FEVER DUE TO STAPHYLOCOCCUS BLOOD INFECTION; SUCCESSFUL USE OF THE ANTISTREPTOCOCCIC SERUM; COMPLETE RECOVERY.**

BY W. W. KEEN, M.D., LL.D., F.R.C.S. (HON.),
Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia.

L. H. (colored), a woman twenty-five years old, was admitted to the Jefferson Medical College Hospital October 7, 1900. Her father, mother, and five brothers and sisters are living and well; one brother has a growth the size of a walnut under the angle of the jaw; two brothers died of dysentery; one aunt with a tumor at the age of forty, and another is very ill with an abdominal tumor. There is no tubercular family history. She had the ordinary diseases of childhood when quite young. She first began to menstruate at sixteen. There is no history of specific infection.

On December 24, 1898, she was thrown out of a wagon and injured her right side, but not so severely as to prevent her from continuing her housework. In March, 1900, she first noticed a small growth about the size of an egg at the lower angle of the right scapu[1]

*Read at the Baltimore meeting of the American Surgical Association, May, 1901.

This growth has gradually increased in size and has been the seat of a dull, aching, almost constant pain, excepting at irregular short intervals, when it becomes very intense and radiates as far as the median line anteriorly. At present deep respiration causes pain.

On admission there was found to be a tumor in the right postero-lateral aspect of the chest, extending from the edge of the erector spinæ mass to the outer border of the right breast, and from the fifth to the eleventh ribs inclusive. It measured 15

FIG. 1.—Tumor before operation.

FIG. 2.—Tumor before operation.

centimeters vertically, 26 centimeters horizontally, and was elevated about 7.5 centimeters above the general level of the chest. There was no infection of the overlying skin, nor was this adherent. The tumor itself was fixed, only slightly lobulated, and was not tender. Her appetite was good, bowels regular, tongue slightly coated, heart and ungs normal.

The blood-count on October 16 was as follows: Erythrocytes, 4,100,000; leucocytes, 7000; hemoglobin, 60 per cent; polymorphonuclear neutrophiles, 65 per cent; small lymphocytes, 22.5 per cent; large lymphocytes, 10 per cent; eosinophiles, 25 per cent.

Urine: Specific gravity 1.026, acid, no albumin or sugar, urea 1.9 per cent. By the microscope amorphous urates, a few squamous epithelial cells; no crystals, pus, blood, or tube casts.

My diagnosis was a sarcoma involving the chest wall, but presumably only beginning to invade the cavity of the chest without any evidences of adhesions of the lung. The same conclusion was reached by Prof. James C. Wilson, who kindly examined her chest for me with great care. In view of the facts set forth in Dr. F. W. Parham's "Thoracic Resection for Tumors Growing from the Bony Wall of the Chest," I decided to use Fell's apparatus for artificial respiration at the time of the operation.

Operation October 17, 1900, in the Jefferson Hospital clinic. I made a large horseshoe-shaped flap by an incision beginning at the outer border of the right breast, extending downward to the eleventh rib, and sweeping backward and upward quite near the vertebral spinous processes as far as the level of the inferior angle of the scapula. This flap, consisting only of skin and the muscles overlying the tumor, was then reflected upward. In doing this I was extremely careful not to include any of the tumor in the flap. I then was able to introduce my hand under the lower border of the tumor and found that, like a mushroom, it had a base considerably smaller than the body of the tumor. Accordingly, in order to remove as little of the chest wall as was possible, I gradually tore the tumor loose from the ribs and peeled it off entirely. A second advantage, besides the smaller amount of chest wall resected, was that I was able to divide the diseased ribs anteriorly and posteriorly at selected points at a sufficient distance away from the disease before opening the pleural cavity, which last would probably involve the collapse of the lung. A third advantage was that having divided the bones, I would be able to divide the soft parts very rapidly and so diminish the period during which collapse of the lung, especially the initial collapse, would be a threatening danger.

I found that the fifth, sixth, seventh, and eighth ribs and the tissues between them were all diseased, but that the ninth, tenth, and

eleventh were free. I first separated the pleura from the anterior surface of the ribs by a periosteal separator, and by means of bone forceps divided each of these four ribs anteriorly and posteriorly without invading the pleural cavity. Then, with a pair of scissors, I rapidly divided the soft parts, including the pleura, and in a moment had removed the entire tumor and made an aperture in the chest wall measuring vertically 18 centimeters and horizontally 12 centimeters. I found that the tumor was

FIG. 3.—Tumor removed, one-fourth natural size.

just bulging the pleura inward, but had not yet contracted any adhesions with the lung, but soon would have done so. As soon as I opened the pleural cavity, the lung collapsed. Fell's apparatus for artificial respiration was immediately put in use by Dr. Spencer. It was used by means of a face mask which covered the mouth and nose, but was not air-tight. For this reason it did not work satisfactorily and the collapsed lung was only very slightly filled with air. But, fortunately, the patient suffered very little indeed from the practically almost total and immediate exclusion of the right lung from any part in respiration. While I was doing the earlier part of the operation, one of my assistants had laid bare a vein at the bend of the elbow in the opposite arm, but without opening the vein, so that he was ready at an instant's notice to proceed to transfusion had it been necessary. As at no time during the operation did the necessity arise, the wound was closed at the end of the operation and gave no further trouble.

As soon as I had made the large opening in the chest wall, I seized the lung with my hand, drew it up to the opening, and as rapidly as possible, with a long continuous catgut suture, sutured the lung to the edge of the opening throughout its entire circumference. In doing so I passed a curved Hagedorn needle directly through the lung tissue, puncturing it perhaps to the depth of two to three centimeters. As the traction on the upper and lower portions separated the two lobes, I sutured these two lobes together at two points, the object of these suturings being to diminish the resulting space for a pneumothorax. The flap was then placed in position, sutured at close intervals, and the wound sealed with iodoform collodion throughout. At the end of the operation the patient was in very good condition.

The following observations were made by Dr. J. W. MacIntosh, who had charge of the anesthetic:

1.30 P.M. Operation begun.

2.10. Pleural cavity opened; respirations 26; pulse 118.

2.15. Respirations 24; pulse 120.

2.20. Respirations 30; pulse 110.

2.25. Anesthetic stopped.

In spite of the character and length of the operation, the temperature fell only to 97.2° after the operation. On the second day it rose to 100.6°, and from the fourth day (Oct. 21) to the sixteenth day (Nov. 7) fluctuated between 100° and 102°. Neither myself nor my house surgeon, Dr. Swartz, nor Profs. J. C. Wilson, W. Joseph Hearn, or J. Chalmers Da Costa, all of whom at my request examined the patient, could find any post-operative evidence either of a pneumothorax or a pyothorax. Very little traumatic pleurisy and no recognizable effusion followed the operation, though the patient suffered moderately from pain at the site of the operation. This was very gratifying, especially in view of the suturing of the lung to the edge of the opening.

Not being able to find any local reason for the continued high temperature, I asked Dr. F. J. Kalteyer to examine the blood. This was done on November 7, the blood being drawn by Sittmann's method. The result was as follows:

"Erythrocytes, 3,425,000 per cubic millimeter; leucocytes, 18,000 per cubic millimeter; hemoglobin, 34 per cent; color index, .5.

"Differential count of the leucocytes: Polymorphonuclear neutrophiles, 95 per cent; small lymphocytes, 2 per cent; large lymphocytes, 3 per cent; eosinophiles, 0.

"Plates were made and tubes inoculated. One plate at the end of forty-eight hours showed five colonies. Three of these were whitish in color and slightly granular in appearance and circular in outline. Spreads were made and stained with Loeffler's meth-

ylene blue and by Gram's method. The growths were found to be the staphylococcus pyogenes albus in pure culture. The remaining two colonies consisted of pure cultures of the bacillus subtilis, a probable contaminating organism. The other plate remained sterile after seven days."

FIG. 4.—Appearance after operation.

The use of the antistreptococcic serum (Parke, Davis & Co.), in doses of 10 cubic centimeters, was begun and continued once daily from November 9 to 14 inclusive, six injections in all being given. The temperature immediately began to fall and dropped progressively till it reached the normal on the 14th, when the injections were discontinued. After that there was no rise above 99°. On the 15th, and again on the 27th, the blood was reëxamined and was proved to be sterile in each instance. Shortly after this she went home well. Fig. 4 shows the final result.

Professor Coplin made the following pathological report on the specimen:

"The specimen consists of a semiovoidal mass of tissue 18 centimeters long, 12 centimeters wide, and 6 centimeters thick; weight, 625 grammes.

"On the convex surface is a triangular area of muscular tissue, 2 centimeters thick on one edge, tapering to a tendinous insertion on the opposite side. The course of the fibers corresponds in general to the long axis of the tumor. The muscular mass is rather firmly attached to the tumor beneath. A second piece of muscle, 1 centimeter thick, 2 centimeters wide, and 10 centimeters long, runs from one edge diagonally across the tumor and terminates near the insertion of the previously described muscle. A delicate layer of connective tissue attaches the muscle to the tumor and extends over the uncovered parts of the tumor.

"The inferior surface is oval in outline and presents muscle fiber generally scattered over its surface. Three distinct elevations 0.5 centimeter high and 0.5 centimeter long are demonstrable upon this surface. Finally sections of four ribs, three 11.5 centimeters long, one 6 centimeters long, are attached. Interstitial muscular structure holds these fragments firmly together. On the inner aspect of the rib sections, and partially covering the middle two, is a pale yellow elevation of tissue 4 centimeters long, 2 centimeters wide, 1 centimeter thick. This tissue is rather firm, slightly nodular, and has attached to its upper margin, extending from the middle of the mass to 3 centimeters beyond it, a ribbon of apparently the same tissue as the nodule. A similar ribbon extends along the lower edge 3 centimeters beyond the nodule to either side. This nodule is a projection of the tumor between the ribs (toward the pleura) and, in common with the remainder of the concave aspect of the surface, is covered by what appears to be a serous membrane. In order to avoid mutilation of the specimen the ribs were not sectioned, but no gross evidence of infiltration by the tumor is to be recognized.

"Specimens were fixed in Heidenhain's solution and stained with hematoxylin and picric acid, toluidin blue, and by other combinations.

"The tissue is composed largely of spindle-cell elements, which cells are arranged in a highly interwoven texture. These cells have interspersed among them elements of multipolar outline tending strongly in appearance to myxomatous cells. The bodies described are in a matrix of fibrous formation resembling that observed in fibromata.

"Mast cells are to be observed with varying frequency, but on the whole are not very numerous.

"Sections from the intercostal and subparietal pleural growth show a much closer aggregation of the types of cells described, in addition to a large number of round cells possessing the same morphology and tinctorial reactions of lymphoid cells situated immediately beneath the pleura. The lymphoid cells are particularly numerous at either end where the growth terminates in the ridges described in the gross specimen. These ridges are of adipose tissue somewhat infiltrated by lymphoid cells. The pleura has lost its characteristic histological structure, becoming somewhat fibrous. Mast

cells are present, but less numerous than in the other sections of the tumor.

"The blood-vessels are numerous and highly atypic, being simply channels lined by the spindle cells before described. Around a few of the blood-vessels a lymphoid cell infiltration is observed.

"Diagnosis: Spindle-cell sarcoma. The cellular elements are for the most part of the so-called small-spindle type, but large spindle cells and numbers of multipolar cells are also present. No satisfactory explanation for the presence of elements morphologically identical with lymphoid cells can be given. Their possible inflammatory origin cannot be excluded."

REMARKS.

There are a few points to which I would call special attention:

1. The method of separating the tumor from the chest wall so as to determine more exactly the limits of the disease and lessen the size of the opening to be made in the chest.

2. The division of the ribs anteriorly and posteriorly prior to opening the pleural cavity. This diminishes by so much the period of danger in collapse of the lung.

3. The use of Fell's apparatus, which was not satisfactory in this case, and for which I would prefer to substitute the apparatus of Dr. Bloom, of New Orleans, which I have the pleasure of showing the Fellows, or the apparatus of Dr. Matas, which he is now to demonstrate to the Fellows. Probably the defective use of Fell's apparatus was due to the mask.

4. The suture of the lung to the chest wall. This was followed by no untoward surgical result. It diminished very greatly the amount of post-operative pneumothorax, and, in fact, one might almost say averted it.

5. Whether the use of the antistreptococcic serum was the cause of the fall of temperature or only a coincidence, one can hardly say, but the results seemed to be quite striking.

6. The examination of the blood was of great value as showing the reason for the continued high temperature, and led to what I believe to have been the proper treatment for this condition.

7. It is, of course, too early to determine what her future will be, but up to the present time, a period of nearly seven months, the results have been eminently satisfactory, no recurrence being yet observed.

THE USES OF PHENOL IN DERMATOLOGY.

By Jay F. Schamberg, A.B., M.D.,
Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine.

Phenol, phenic acid, carbolic acid, or phenylic alcohol, as it is variously designated, has been used locally and internally for many years in the treatment of diseases of the skin. Its value as a topical medicament has so far eclipsed its reputation as a constitutional remedy that many physicians are doubtless unaware that it has any internal uses in dermatology. Nevertheless, many careful observers have testified to its efficacy when administered in appropriate cases. In the treatment of *psoriasis* it appears to have earned a more permanent place in dermatological therapeusis than in any other affection. Kaposi says of it: "In carbolic acid we possess an excellent tar preparation which, administered in the form of pills, is well borne and acts analogously with arsenic. One prescribes

℞ Acidi carbolici, gr. cl.
Ft. pil. No. 100. S.: 5 to 10 pills daily.

One can continue the medicament for weeks even in larger dosage, although I hold this unnecessary. With the exception of mild irritation of the kidneys I have never seen the slightest harm from its use." McCall Anderson says carbolic acid is especially useful in chronic psoriasis where the patches are not much infiltrated. It may be given in three- to ten-grain doses daily in the following formula:

℞ Acidi carbolici, ʒ iij;
Glycerini, f ʒ j;
Aquæ destillat., f ʒ v.
S.: One drachm in a large wineglass of water before meals.

Carbolic acid has also been advised in the treatment of *pruritus*. I have recently had the opportunity of studying its effects in several cases of generalized itching which had lasted over a period of months. In all of these cases there was improvement, amounting in one or two patients to a practical cure. The drug was given in one- to four-grain doses in sherry wine.

℞ Acidi carbolici, ♏ xxiv to lxxij;
Glycerini, f ʒ j to f ʒ ij;
Vini Xerici, q. s. ad f ʒ iij.
S.: One drachm in water after meals.

In this form phenol is not at all unpalatable and agrees well with the stomach. In o-

patient the appetite was distinctly improved by its use. No renal irritation was observed.

When carbolic acid is given internally it is said to circulate in the blood as an alkaline carbolate, and is eliminated in the urine as a sulphocarbolate. In what manner it acts in pruritus is difficult to state with any degree of positiveness. The drug acts as an antifermentative in the stomach and bowel, and also acts as a valuable intestinal antiseptic. Cases of pruritus due to intestinal autointoxication might readily be improved by the use of phenol. It is known that phenol is eliminated through the sweat glands, probably as carbolates. The contact of the drug with the skin may exert in this manner a certain antipruritic effect. I am told by a friend that carbolic acid internally is an excellent deodorant in malodorous sweating.

The drug appears to be quite safe in reasonable doses. Bell reports its use in the treatment of the plague; in a case ending in recovery he gave twelve grains every three hours until 250 grains had been administered.

The *local uses* of phenol, however, have given the drug its chief reputation. According to the strength in which it is employed, it acts as a sedative, a stimulant, or an escharotic. It is, moreover, a valuable antiseptic, and above all an antipruritic. Its action in benumbing the peripheral nerves of the skin makes it one of the most valuable of all applications for the relief of itching. It has been styled the "morphine of the skin." Carbolic acid has therefore been extensively employed in all dermatoses accompanied by pruritic manifestations. It has found an eminent field of usefulness in *eczema*, in which disease there is as a rule such distressing itching. In acute erythematous or papular eczema, the following lotion will be found most grateful:

℞ Acidi carbolici, gr. xxx;
Acidi borici, ʒ j;
Glycerini, f ʒ j;
Zinci oxidi, ʒ ij;
Aquæ, q. s. ad f ʒ vj.

In more chronic cases it may be employed in greater strength. Hebra advises in chronic scaly eczema of the face:

℞ Acidi carbolici, ʒ ij;
Glycerini,
Ætheris, āā ʒ j;
Spts. vini rect., f ʒ vj.

This preparation must, however, be used with care.

In subacute vesicular eczema and in eczema rubrum I have obtained most excellent results from a phenol-calomel paste of the following composition:

℞ Acidi carbolici, gr. x;
Hydrarg. chlor. mit., gr. xx;
Pulv. amyli,
Pulv. zinci oxidi, āā ʒ ij;
Petrolati, ʒ ss.

This ointment is a safe and generally useful application in all except the very acute eczemas. In other cases of subacute eczema carbolic acid may be incorporated in a modified diachylon ointment:

℞ Acidi carbolici, gr. x;
Plumbi oxidi (c. p.), ʒ j;
Petrolati,
Lanolini, āā ʒ ss.

A cooling and antipruritic ointment of great efficacy, useful in erythematous, papular, and squamous eczema, and in lichen planus, pruritus, etc., is made up as follows:

℞ Menthol, gr. v–x;
Acidi carbolici, gr. x–xx;
Ung. aquæ rosæ, ʒ j.

This produces primarily a mild burning sensation followed by a distinctly refrigerating effect. When other ointments fail to relieve itching, this often acts in the most gratifying manner.

In chronic papular eczemas accompanied by infiltration, and in lichen planus, a stimulating ointment suggested by Unna may be employed:

℞ Hydrarg. chlor. corrosiv., gr. ij;
Acidi carbolici, gr. xx;
Ung. zinci oxidi, ʒ j.

In *pruritus* and *urticaria*, carbolic acid in the form of a lotion is a remedy always to be relied upon to give at least a considerable measure of relief. The addition of alcohol to the lotion increases its antipruritic efficiency. Sopped on the skin as often as is required, it constitutes a cleanly and agreeable mode of treatment.

℞ Acidi carbolici, ʒ j–ʒ ij;
Glycerini, f ʒ j;
Spts. vini rect.,
Aquæ, āā f ʒ iij.

In obstinate cases, menthol, camphor, chloral, or tincture of mineral tar (liq. carbonis detergens) may be added.

Alopecia Areata.—There is at present considerable divergence of opinion concerning the origin and character of alopecia areata. The French school strongly champions the microbic theory which holds microorganisms as the sole cause of the disease. Certain

other dermatologists regard the affection as purely trophoneurotic in nature. The truth may perhaps be found in an intermediate position. At any rate, whether germs or nerve innervation be invoked as a cause, we possess in carbolic acid a remedy which fulfils two important therapeutic indications, stimulation and sterilization. Duhring advises the following lotion:

℞ Acidi carbolici, f 3 j;
Alcoholis, f 3 j–f 3 vj;
Olei ricini, f 3 ij;
Olei amyg. amar., gtt. x.

I have for some time been employing in alopecia a liquid consisting of:

℞ Acidi carbolici,
Alcoholis, āā f 3 ss.

This is painted upon the patches with a cotton swab once or twice a week. In the interim milder stimulating and antiseptic agents are used. The application produces a burning sensation, and leaves, upon drying, a whitened skin which later becomes considerably reddened. In three or four days a mild scaling is seen. This application does not act as an escharotic, but as an intense stimulant. The alcoholic character of the solution enables it to penetrate into the mouths of the hair follicles and thoroughly sterilize them. The results of this method of treatment are extremely gratifying.

Crocker says of the application of pure carbolic acid in alopecia areata: "I can bear out the statement that carbolic acid applied on a match stick with cotton acts only as a superficial escharotic. The skin is immediately whitened and the epidermis peels off in a few days, but no sore or deep destruction ensues."

Parasitic Diseases. — The phenol-alcohol solution just referred to is of considerable value also in the treatment of ringworm of the scalp. Carbolic acid in lotion or ointment form is useful in the treatment of many parasitic diseases, such as impetigo contagiosa, ringworm of the skin, beard, or scalp, tinea favosa, tinea versicolor, and in the various animal parasitic affections.

Furuncles.—Boils may at times be aborted by cauterizing the center of each lesion with pure carbolic acid upon a probe or toothpick.

Carbuncles. — Manley and others have claimed excellent results from the early injection of pure carbolic acid into carbuncles. In the early stage, before extensive infiltration has occurred, the injection of about three minims will suffice; later considerably more acid must be used, it being injected into each of the necrotic foci of the carbuncular infiltration. When used early, it is said that "the relief is so prompt and the destruction of infective spread so decisive, that the suffering patient again enjoys his unbroken sleep and recovers his appetite."

In conclusion it may be well to call attention to certain dangers which may attend the too free use of carbolic acid upon the skin. In ointment form the drug should not be applied over too extensive an area of the body surface for fear of toxic absorption. The danger is increased if the skin be denuded of epidermis. Lotions applied to an abraded integument are also not entirely devoid of risk. Again, a number of cases of gangrene have been reported from the application of carbolic acid to the skin in the form of continuous moist dressings. Such dressings should therefore be avoided.

AN OPHTHALMIC CLINIC IN THE JEFFERSON COLLEGE HOSPITAL.

By G. E. de Schweinitz, M.D.,
Professor of Ophthalmology.

The first cases to which I desire to call your attention present lesions which furnish some of the indications for local anesthetics, hemostatics, and astringents.

Case I. — *Herpes zoster ophthalmicus with corneal involvement; action of dionin.* This patient, a man aged about twenty-five, has suffered from an attack of right-sided herpes zoster ophthalmicus, which, as you know, is an inflammatory disease characterized by an eruption of vesicles situated upon inflamed bases over the area supplied by two of the three branches of the ophthalmic; namely, the frontal through its supraorbital and supratrochlear branches, and more rarely the nasal nerve. You will observe that this area of distribution is still reddened and that upon it are scars, the remnants of the vesicles which were present at the height of the disease. Very frequently the eye itself is seriously involved, most often when the nasal branch is affected and the vesicles extend to the tip of the nose, because from this branch through the lenticular ganglion arise nerves supplying the iris, ciliary body, and choroid. In the present instance the iris has escaped, but scattered over the cornea are several small superficial corneal ulcers approaching

the stage of cicatrization. The patient suffers with ciliary neuralgia and is plagued with the most persistent photophobia and lacrimation, which have stubbornly resisted treatment. The skin lesions of the affection have well-nigh subsided and require no treatment, but the keratitis is far from well, and inasmuch as the usual measures, namely, atropine mydriasis, tepid boric acid lotion, protection from the light by means of smoked glasses, etc., have proved ineffectual, some local anesthetic more powerful than those thus far employed is indicated.

The ocular anesthetics with which you are best acquainted are cocaine, holocaine, and eucaine. As I have often told you, cocaine, perhaps the best of all these drugs, is very advantageous for temporary anesthesia, but not good for continuous use, as it is apt to produce drying and wrinkling of the corneal epithelium, and if anything, tends to increase the corneal ulceration if it is too constantly used. Eucaine I have long since abandoned in ophthalmic work, not because it lacks the power to produce anesthesia, but because it is often irritating and at best not nearly as satisfactory as the drug just named. Holocaine, originally introduced under the name of amidin, is an admirable anesthetic in a one-per-cent solution. It causes anesthesia in from fifteen seconds to one minute, and maintains this anesthesia for about ten to fifteen minutes. Its instillation is followed by a temporary burning sensation. It differs from cocaine inasmuch as it does not enlarge the pupil, is said not to increase intra-ocular tension, and is distinctly bactericidal. Its direct application to corneal ulcers is particularly advocated by Hasket Derby in this country, and has often in my hands proved most beneficial. I frequently add it to the various antiseptic collyria—for example, boric acid lotion—and sometimes apply it directly by means of a cotton mop to the ulcerated surface, and have never had occasion to regret a practice of this character.

In recent times a number of other anesthetics have been introduced to the attention of the profession. One of these is acoin, a white powder soluble in water in the proportion of about 4½ grains to the ounce, which is chemically related to caffeine and theobromine. I have had no great experience with it, but my friend Dr. Randolph, of Baltimore, has experimented quite largely with the drug and finds that it creates a moderately satisfactory anesthesia in an unirritated eye in about the same time as cocaine, but that in congested eyes it fails to produce complete anesthesia. It seems to have no particular influence upon the epithelium of the cornea, does not affect accommodation nor the size of the pupil, and is said to have no influence upon intra-ocular tension. This failure to act well in congested eyes would at once dismiss it from use, so far as the present case is concerned. By some Continental observers it has been much advocated as an anesthetic to prevent the pain of subconjunctival injections, either of salt or of the various mercurial preparations, as you have often seen them used in this clinic. I have not employed it for this purpose, having always been satisfied with holocaine or cocaine, and therefore can give you no personal experience.

A very important local anesthetic is dionin, which is a morphia derivative and which has a most interesting action upon ocular tissues. In five-per-cent solution (stronger solutions are said to be unstable) it produces a few seconds after its instillation into the conjunctival sac smart burning followed by a marked edema of the conjunctiva. In a short while, varying from a few minutes or half an hour, this edema subsides and anesthesia appears, which is said to last from a few hours to twenty-four or thirty-six hours. The drug has been warmly recommended by Darier in France, who uses it in a five-per-cent solution, instilling a drop at a time. Under these circumstances chemosis of the conjunctiva and analgesia occur, but anesthesia of the cornea is said not to follow. According to Graefe, favorable results may be expected in cases of old corneal disease, chronic catarrh of the conjunctiva, iritis, iridocyclitis, and even in retino-choroiditis. In trachoma it seems to be of little value. It should not be used in operations to produce anesthesia of the cornea, because it renders this membrane, so it is said, liable to striped keratitis. Occasionally prolonged reaction of an unfavorable type follows its employment.

I have here a solution of dionin of ten-per-cent strength freshly made this morning, and will instil a few drops into our patient's eye. You see that this instillation is followed by sharp smarting, and now within a few minutes a marked chemosis of the conjunctiva appears. Instead of a solution, some of the Continental oculists are in the habit of using the powder itself, but it would seem to me that this is a practice not wise to follow.

I will report to you at future clinics what the effect of this drug has been on our patient. If the claims for it are substantiated, the patient ought to be relieved from the intense irritation and photophobia from which he suffers for some hours to come. (The patient reported next day that he had been comfortable for nearly twenty-four hours, and there was relief from his photophobia)

Another remarkable drug, which perhaps is destined to play an important rôle in ocular therapeutics, but with which I have had no personal experience, is peronin, which is related to benzol and morphia, and produces, on the one hand, the anesthetic action of benzol, and on the other the myotic action of morphine, and has been advocated especially abroad in such a disease as glaucoma, where you can readily understand that these combined actions would be of great advantage.

CASE II.—*Granular lids; intense pannus; abscess of the cornea; action of atrabilin and adrenalin.* This patient, a man aged about thirty, has suffered for a long time from unilateral trachoma. Some six or eight weeks ago pannus developed, followed by corneal abscess. He has been under the treatment of various surgeons in different hospitals without much benefit, and as you see the eye presents a sad state of affairs, namely, extensive papillary trachoma, thick pannus involving the whole upper half of the cornea, and a large corneal abscess occupying the inferior half of this membrane. The ocular conjunctiva is intensely injected, but not studded with granulations as is the conjunctiva of the lids. The eyeball seems to be almost on the verge of a general panophthalmitis, and indeed the patient has been advised to shorten his disease by submitting to an evisceration of the eyeball, not because local treatment will not eventually produce a subsidence of the inflammation, but because, even at the best, the cornea will be so greatly scarred that useful vision will be lacking, and the intense pain from which he has suffered has so depressed his nutrition that he has been unfitted for work for weeks past. Ordinarily the treatment of a case of this kind would include the usual applications to the everted lids—for example, nitrate of silver, protargol, and when the papillary hypertrophy is subdued, more astringent measures to subdue the granulations, as strong solutions of bichloride of mercury, iodized tannin and glycerin, sulphate of copper, etc. Locally one would naturally use atropine to relieve the ciliary congestion, provided it did not increase the granulations, scopolamine for the same purpose, and perhaps section of the cornea to evacuate the abscess.

In modern times, especially for the last five or six years, it has been the habit of ophthalmic as well as nasal surgeons to dissipate intense congestions of mucous membranes by means of the extract of suprarenal capsule, which you have often seen used in this clinic. Satisfactory results may be obtained, as, for example, is advocated by Dr. Bates in New York, with a mixture containing one part of the dried and powdered gland and ten parts of water, the emulsion being filtered before it is employed. The drug has also been suitably prepared for use in glycerin mixture, and can be obtained in the shops in compressed tablets, which are dissolved in sterilized water. There is not the slightest doubt that this substance has a most amazing hemostatic and astringent action, and in a few seconds after its use a congested mucous membrane is blanched almost to whiteness.

Another preparation of suprarenal gland is known as atrabilin, which if I remember correctly was introduced about two years ago, and which is, as you see from the preparation I hold in my hand, a brownish liquid not unlike iodine in its color, which may be employed in its pure state, or mixed with boric acid, for example, in the proportion of two grammes of atrabilin, half a gramme of boric acid, and ten grammes of distilled water. In thirty seconds after its application, as you may observe in the present instance, the tissues become blanched and the intense congestion subsides. This blanching lasts from eight to ten minutes, or even longer, and then slowly the congestion reappears, not so great, I think, however, as it was before the application, or at least not immediately so great. Whether there is a later secondary congestion or not I am not quite sure. This I have sometimes suspected occurs after the use of the suprarenal extract.

Still another preparation of this remarkable substance I exhibit in this bottle, and which is an active principle of the suprarenal gland separated by Dr. Takamine, and to which the name adrenalin has been applied. I have two preparations here, which Dr. Hare has been kind enough to give me, one in a strength of 1:10,000 and one in a strength of 1:1000, either of which instilled in the conjunctival sac will blanch it, as did

the other preparation which I have shown you, in thirty seconds. I have not been able to observe any great difference in the rapidity of the action of the extract of suprarenal gland, atrabilin, or adrenalin, nor have I been able to notice that one is more efficient in blanching than the other. The advantage of adrenalin, however, is that you deal with a clear fluid, the physiological activity of which is very great, so that it may be mixed with sterile water, physiological salt solution, or boric acid, and continue to be potent even in a strength of 1:10,000. A very interesting field for observation, and one which is at present being followed in this clinic, is to observe the order in which the various vascular systems of the eye are affected. Ordinarily you will remember that the blood-vessels of the eye are divided into three systems: First, the posterior conjunctival vessels, which are particularly injected in the various types of conjunctivitis; secondly, the anterior ciliary vessels, composed of perforating and non-perforating arteries and veins, which when congested produce the so-called circumcorneal zone, one of the marked indications of iritis and cyclitis. Congestion of these perforating veins creates the dusky hue in the same region which one often sees in glaucoma, cyclitis, and scleritis. The third system is composed of the anterior conjunctival vessels and the plexus of capillaries surrounding the cornea derived from the anterior ciliary vessels, through whose numerous small vessels an anastomosis between the other two systems takes place. Their congestion creates a circle of bright-red injection, often partly on the cornea, which we see in various types of vascular keratitis. In such a case as the one which I have exhibited to you now, all of the various systems are commingled — that is, all are congested — and therefore we may perhaps be able to differentiate to a certain extent the order in which this hemostatic affects them. It would be necessary to make a good many observations before we were sure of this point, but apparently the posterior and anterior conjunctival vessels lose their vascularity first, perhaps the ciliary zone second, and last of all, if at all, the deep-seated congestion which is created by overdistention of the perforating veins and episcleral twigs, which as I said a moment ago is present in cyclitis and scleritis. When we have made a sufficient number of observations this subject will be reported more at length, and I am able at present only to suggest the probability that this is the sequence. Whether these preparations have a curative influence or not it is difficult to state. There is reason to believe, however, that their instillation, followed as it is by a more or less temporary blanching of the tissues, gives the affected tissues, as it were, time for recuperation, and I am told by some dermatological colleagues that atrabilin, when employed upon the lesions, for example, of a superficial epithelioma, seems to facilitate its cure, probably for the same reason, and therefore we may hope perhaps that it might have a similar influence upon intensely inflamed eyes such as the one which I exhibit to you to-day. The great value of these preparations in controlling hemorrhage from mucous membranes during operations on the eye is undoubted, and they may be used in tenotomies, excision of pterygia, iridectomies where the eye is greatly congested, operations for the relief of symblepharon, etc.

The next case brought here for your consideration illustrates some very important diagnostic and therapeutic principles.

1. *Acute glaucoma following the instillation of homatropine.* The patient is a Jewish woman, aged thirty-six, who states that three weeks prior to her application for treatment here she had a sudden attack of pain in the right eye followed by rapid deterioration of vision, which followed the instillation of a mydriatic. This history is corroborated by her physician, who saw her at that time and who tells me that the mydriatic was an ordinary solution of homatropine used for the purpose of determining the refractive error. The difficulty was promptly recognized, and equally promptly treated by the ophthalmic surgeon then in attendance with eserine and the internal administration of salicylate of sodium. As relief was not rapid iridectomy was urgently advised, but positively declined. The patient did submit, however, I believe, to one or two paracenteses of the cornea, but continued stubbornly to decline the only surgical measure which would doubtless have given her relief. As you see her to-day the conditions are as follows: V = l. p. in the upper and outer quadrant of the field of vision. The pupil is semidilated and fixed, the anterior perforating vessels distended, the cornea decidedly hazy and anesthetic, and the media so cloudy that a view of the fundus cannot be obtained. The tension is at least + 2. The treatment of this case, inasmuch as the ordinary medicinal therapeutic measures have failed to give relief,

should be either sclerotomy or iridectomy, operations to which the patient declines to submit. We can therefore only continue the therapeutic measures which have already been tried, and I shall order a strong solution of eserine to be instilled every hour and large doses of salicylate of sodium, which latter remedy has an amazing influence in subduing the glaucomatous pain. I call your attention to the case particularly, however, to impress upon your minds the fact that the use of even mild mydriatics like homatropine is occasionally followed by glaucoma in comparatively young subjects. Of course we know that this is not uncommon in patients past middle life. A number of such cases have now been reported, one quite recently by Dr. Gifford, who advises that after the use of mydriatics, if patients are to go some distance from the office, a solution of eserine should be instilled as a precautionary measure. I am inclined to think, however, that these glaucomatous attacks induced by the action of a mydriatic do not occur in eyes unless there is a predisposition to increased intra-ocular tension, a predisposition which certainly exists very frequently in the Jewish race. It is quite possible that if an opththalmoscopic examination had been made shortly after the instillation of this mydriatic pulsation of the retinal vessels would have been visible. Dr. Jackson has called attention to this point, and has indeed gone so far as to suggest that this might be used as a test of the predisposition of an eye to glaucoma, and if it should occur, then such therapeutic or even surgical measures as we know relieve this disease should be instituted.

2. *Acute glaucoma complicating an attack of influenza.* This patient, a married woman aged thirty-five, American by birth, ten days ago, while suffering from grippe, was seized with violent pain in the middle of the night in her left eye. She was not then in a position to obtain medical advice, and the disease was evidently unrecognized and treated for more than a week with measures not calculated to relieve the affection. Indeed, from all I can learn, a mydriatic was instilled, which as you know only aggravates an attack of glaucoma. When she came to the clinic vision was reduced to l. p., and all the signs of acute glaucoma were well pronounced, namely, increased tension, widely dilated and immobile pupil, anesthesia of the cornea, marked haziness of this membrane forbidding a view of the fundus, and injection of the vessels of the globe. A broad peripheral iridectomy was at once performed, and the patient experienced immediate relief from pain. Forty-eight hours later, while she was in the ward and both eyes bandaged, an attack of glaucoma began in the right or opposite eye. I happened to be in the house at the time, and as some of you will remember, was able to demonstrate to you the appearances in the very earliest stage of this disease. The attack was promptly controlled by the frequent instillation of eserine, and now the vision has returned to normal in this eye, and the eye upon which the iridectomy has been performed, less than one week afterwards, has gained a vision of 20–50, the media have become clear and the eye ground entirely visible. The disk contains a typical glaucomatous cup, and on it and in its immediate neighborhood are a number of small retinal hemorrhages, which may have been associated with the attack of glaucoma, or may have resulted from the sudden reduction of tension after the iridectomy. They will almost certainly absorb, and I have no doubt that full acuity of vision will return. The case stands in good contrast to the preceding one. The woman was sensible and submitted to an operation which has restored her sight.

I bring the case to you to illustrate two points, first, that not infrequently during attacks of influenza glaucoma arises, and there is a good deal of evidence to show that this disease in some way not yet well understood may provoke an attack of increased intra-ocular tension. Some writers, myself amongst the number, have thought that the disease chronic glaucoma is in some way related to influenza in a certain number of instances.

Another point that I wish to impress upon your memories is one which is well known, namely, that iridectomy for the relief of glaucoma upon one eye is sometimes followed, as it was in this case, by an attack of glaucoma in the opposite eye. Therefore after an iridectomy the healthy eye should be kept under the influence of eserine. *I would like to go further and express my belief that in the majority of cases it would be better to perform an iridectomy upon the healthy eye, or upon the apparently healthy eye, which sooner or later is liable to be followed by such an attack.* In the present instance I have advised this woman, although the glaucomatous attack has passed away under the influence of eserine, to submit to an iridectomy, for the simple reason that the operation is nearly always followed by good results and that it removes from that eye a danger to which it

will hereafter always be subjected, and which will force the patient to keep this eye more or less constantly under the influence of eserine. It is true that unilateral attacks of glaucoma are not infrequent, and sometimes the opposite eye entirely escapes; but so often the opposite state of affairs obtains that one is justified in going to the length of the recommendation which I have just made. (One week later another attack of glaucoma occurred in the apparently sound eye; iridectomy was performed with entire success, vision now being normal in each eye.)

3. *Glaucoma coming on during an attack of grippe masked by conjunctivitis.* This patient, between fifty and sixty years of age, some time during November last year suffered from influenza. During this attack she was seized with bilateral conjunctivitis—at least, that is the probable diagnosis. The left eye, however, failed to clear up, the pain became intense, and evidently glaucoma developed and was not recognized. As in the second case, I am afraid that a mydriatic was employed, judging from the woman's description. Be that as it may, the eye has now passed into a stage of chronic inflammatory glaucoma which has existed for more than two months, namely, increased tension, anesthetic cornea, widely dilated pupil, hazy media, and a bluish- or violaceous-tinted area of congestion outlining the ciliary body. Vision is reduced to l. p. and no view of the fundus can be obtained. I have tried the effect of strong solutions of myotics and large doses of salicylate of sodium without avail, and have urged the woman to allow me to perform an iridectomy or a sclerotomy, a recommendation which she has seen fit to reject. The disease has been of too long standing to hope that the iridectomy will restore vision, but it would at least, if successful, relieve her of the constant pain from which she suffers and might save some vision. I have rarely seen three more instructive cases, and hope you will profit by the lessons which they teach.

So far as the medicinal treatment of this disease is concerned, the myotics which yield the best results are eserine and pilocarpine. In acute glaucoma the strength of eserine may be from one to two grains to the ounce, and pilocarpine in twice that strength. Another myotic which has sometimes been employed is arecolin in one-per-cent solution. I have had no experience with the drug and therefore cannot advise it. I am satisfied, however, from what I have read, that it does not compare in value with either of the other two. In my experience an iridectomy, peripherally placed, which excises one-fifth of the iris, is the best of the operative procedures, although some surgeons are still favorable to sclerotomy. In recent times De Wecker has advocated a combined sclerotomy and iridectomy—that is to say, first a sclerotomy, and some time afterwards an iridectomy. This method is believed by this distinguished operator to be followed by the best results. Personally I have always been satisfied with iridectomy alone, although if this failed, rather than make a second iridectomy, I would perform sclerotomy.

Three years ago Abadie on theoretic grounds urged division of the cervical sympathetic for the relief of glaucoma, and soon afterwards Jonnesco put this procedure into practice by excising the superior cervical ganglion of the sympathetic in several cases of glaucoma. Up to the present time about seventy-five operations of this kind have been performed, and if the recent analysis of Ziehe and Axenfeld may be taken as a guide, the indications are that in some cases of glaucoma, especially of chronic glaucoma and chronic inflammatory glaucoma, in which other well recognized procedures have failed, this operation is not only justifiable but should be recommended. You understand the indications for it are exceptional, and it should under no circumstances be advocated to replace the measures which I have just described; if they fail, or are refused, excision of the sympathetic in the neck may be considered.

TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By De Forest Willard, M.D.,
Clinical Professor Orthopedic Surgery, University of Pennsylvania; Surgeon to the Presbyterian Hospital, Philadelphia.

Cases of lateral curvature of the spine present such great variations that it is almost as difficult to lay down positive lines for treatment as it is to assign reasons for the curvature and for the rotation of the bodies of the vertebræ. The varying degrees of distortion and of rotation, moreover, demand close and special study, both of the requirements of a given case and of the results secured by any set of muscular movements. A careful survey of a hundred cases will show

that the deviations in the curves of the spine, and in the other bony distortions, are almost infinite. Two curvatures in the same region and of apparently the same degree give entirely different results as regards the position of shoulders, the rotation of the scapulæ, the deformity of ribs, and the twist of the pelvis. The first element in treatment, therefore, and the one most neglected perhaps, is close observation of the nude back, and the effect of various motions upon the vertebræ and ribs; oftentimes, too, a front view is desirable. In young children the whole body should be stripped.

Differences in length of limb and tilt of pelvis should be mechanically corrected. False habits of sitting, standing, and working should be overcome. The life of the individual should be placed upon a definite and healthful basis, and the axiom that the cooperative efforts of the patient are all-important for success must be inculcated. Cure, in fact, lies in the hands of the individual, under the direction of the surgeon and the physical instructor.

As many of these cases are or have been rachitic, and as nearly all have lax ligaments and relaxed muscles, attempts should be made to restore muscular equilibrium. No brace, it is obvious, can accomplish this; it is, therefore, worse than useless as a corrective measure. Apparatus may sometimes be necessary to assist in the prevention of a rapidly increasing curve, or for the comfortable support of an old and hopeless curvature and rotation, but it is not a part of the proper treatment. Apparatus has a place, but a limited one, in the correction of this deformity.

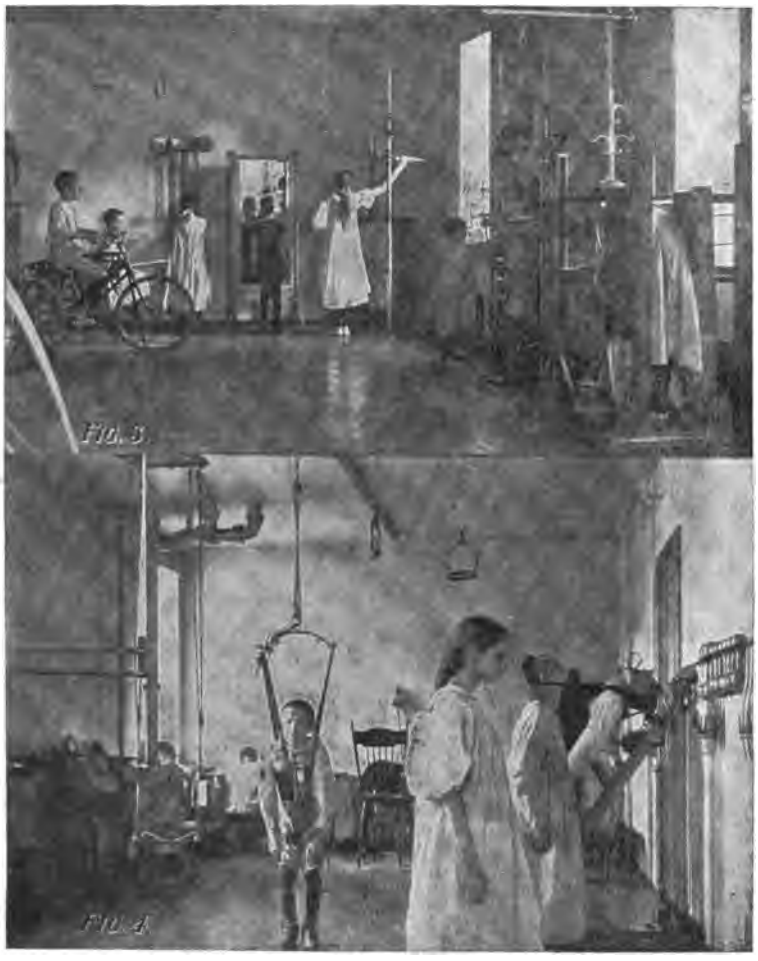
After long experience in the management of these cases, at the office and at their homes, both personally and through a physical instructor, I found that to maintain the interest of these patients in their work, and to prevent the exercises from becoming a drudge and an unpleasant duty, it was necessary that there should be a large variety of exercises to allow variation from day to day. As this cannot be secured in private homes I fitted out at the Hospital of the University of Pennsylvania a special gymnasium, with forty or fifty different appliances helpful for special muscular development. The results of a test of several years have been more satisfactory even than I expected. A prescription for each case is carefully made after several examinations, and all the work is done under the supervision of the surgeon and an instructor. For young children the element of play must be considered, and for them spring and hand-propelled swings are valuable. These are also available in any private house or on a porch, the latter needing only a pair of turned hand-pieces sliding up and down upon the ropes, these hand-pieces being attached to a fixed point or arm a foot in advance of the suspension points of the swing. For home use also for young children, musical dumb-bells, return hand- and foot-balls, balance boards and spring boards, are of service, in addition to punch-balls, light dumb-bells, clubs, wands, wooden guns, and similar apparatus. Only rarely do I use heavy dumb-bells.

The best voluntary corrective position obtainable by the key-note position of the patient's arms and trunk having been ascertained, flexions of the body both forward and backward are greatly desirable. With the arms thus placed, rotations of the vertebræ upon their long axes, either to right or to left as may be found helpful in each case, should also be practiced. Rotations in the long axis of the vertebræ with the body flexed at right angles to the legs should also be employed in this key-note position. In the same position, also, there should be rotations of the body from side to side. It is very important that the backward flexibility of the dorsal portion of the spine should receive attention. In the position of hyperextension with hands clasped behind the neck, lateral backward movements are very helpful, as are also rotations and leg movements. Care should be taken that the patient does not simply lordose the lumbar region. This backward flexion can be more forcibly accomplished by supporting the projecting ribs on the side of the convexity with a fulcrum or padded roll, or with a webbing strap, which saves the strength of the instructor. In all dorsal lateral curves the muscles on the side of the concavity of the curve should receive at least one-third more work than those on the side of the convexity; for this purpose a trapeze with two bars, one above the other, should be employed; also swinging rings of uneven heights.

A large proportion of the movements should be voluntary, but the supervision of the surgeon or of the instructor is imperative, not only to guide the movements, but also to control the position of the pelvis, and to make hand-pressure as a fulcrum upon the projecting area. With the chest weight, or with a Whiteley elastic-rope exerciser, many valuable movements can be secured by having one attachment for hand, another for foot,

and another as a bridle for head, neck, and trunk work. In the use of the chest weight it is important that the movements shall be such as will not simply bring arm muscles into play; the final pull must demand the action of all the scapular muscles, particularly the serrate, so as to secure the full rotating

jecting ribs and also upon the opposite compensatory lumbar curve by means of strong screw-pads and heavy weights, the last in the bowed position. The benefit to be secured in the badly distorted cases is necessarily slight; the time for the improvement of a lateral curvature is in its very first stage;



Special Orthopedic Gymnasium, University Hospital.

effect on the chest upon the side of the concavity. Single hand-work, therefore, should be largely employed. During this single hand-work the body should be placed with the side of the convexity nearest the machine.

An endless rope running from a pulley supplied with a friction brake is also helpful.

Self-suspension from a head yoke, the hand on the side of the concavity being uppermost, has a decidedly corrective effect. In extreme cases, such a yoke attached to a chair can be used while sitting; and in very bad cases, head extension and traction at night may be employed. For these severe cases I use powerful pressure upon the pro-

a stage, unfortunately, which is seldom diagnosed either by the physician, mother, or patient.

In a gymnasium where a large number of cases are to be treated simultaneously, a mechanical massage machine run by an electric or a water motor is of great assistance in relieving the instructor, and on the whole it does excellent work.

A perfectly flat rattan couch three feet high is very useful. This can be used not only during the massage of the muscles of the back, but also for leg movements and rotations, and for the voluntary elevations of shoulders and thorax, the patient lying

prone. With a strap also to support the legs, the patient can overhang the end of the couch and practice voluntary movements.

Loose gymnastic suits of special pattern should be worn; the whole rear being easily detachable, so that the effect of muscular movements upon the bare back can be frequently watched and corrected if wrongly employed.

The gymnasium is provided with a hot and cold shower-bath for the completion of the treatment, which is to be followed by rest upon a flat couch in the dressing-room. The dressing-room is supplied with lockers for each patient's individual clothing.

When patients are dismissed they are given a list of exercises to be continued daily at home, preferably under the care of an instructor; but, after thorough training for several months, a conscientious worker can accomplish much through her own systematized efforts. The following is a copy of the usual prescription blank:

Check Each Treatment Desired, and Give Full Instructions as to Massage and Muscular Movements.

ORTHOPÆDIC GYMNASIUM PRESCRIPTION.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

Name and address .....

Diagnosis .....

Age .....

Surgeon .....

Date .....

Treatments weekly .....

1. Superheated air appliance.
2. Mechanical massage.
3. Manual massage.
4. Muscular movements.
5. Mechanical movements.
6. Chest expander.
7. Indian clubs.
8. Light dumb-bells.
9. Heavy dumb-bells.
10. Bridle.
11. Quarter circle.
12. Wrestling machine.
13. Beely's scoliosis appliance.
14. Weigel's scoliosis appliance.
15. Sargent's scoliosis appliance.
16. Swedish side bars.
17. Sargent's chest weight.
18. Lat. curv. bicycle.
19. Mechanical bicycle.
20. Rings.
21. Double trapeze.
22. Self-suspension.
23. Lat. curv. manual pressure board.
24. Fulcrum.
25. Whiteley exerciser.
26. Endless rope.
27. Wands.
28. Guns.
29. Abdominal stool.
30. Leg rotating machine.
31. Leg circling machine.
32. Flexor foot and ankle machine.
33. Foot circumduction machine.
34. Return foot-ball.
35. Balance board.
36. Double staircase.
37. Spring board.
38. Trolley support.
39. Spring swing.
40. Mechanical swing.
41. Finger machine.
42. Pronator and supinator machine.
43. Arm machine.
44. Wrist roller.
45. Punch-ball.
46. Exercising rings.
47. Massage exerciser.
48. Bar dumb-bells.

The majority of these home exercises are voluntary, and do not require special apparatus. When the patients can afford it, however, they are advised to have erected at home, self-suspension yoke, horizontal bar, double trapeze or rings, a chest weight or Whiteley exerciser. They should also purchase a pair of light wooden dumb-bells and Indian clubs. An endless rope and a wrestling machine may be added with advantage. A hard bed or table will take the place of the couch for prone exercises. With any or all of these a large variety of movements can be secured.

The patient should sleep upon a flat mattress; should avoid slouchy positions of sitting, standing, and walking; and in bad cases may use a sloping seat for sitting or for bicycle riding.

PAINFUL AFFECTIONS OF THE FEET, AND THEIR TREATMENT.

By James K. Young, M.D.,
Professor of Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery, Women's Medical College of Pennsylvania; Instructor in Orthopedic Surgery, University of Pennsylvania; Assistant Orthopedic Surgeon, Hospital of the University of Pennsylvania.

There are many painful affections of the feet for which the practitioner of medicine is consulted which have not received the attention they deserve in the text-books upon general surgery. Many of them, starting as simple affections, become more and more serious until the patient is permanently crippled and unable to attend to his ordinary occupations. These affections include:

Flatfoot.
Metatarsalgia.
Pronation.
Sprains.
Non-deforming clubfoot.
Hammer-toe.
Displacement of the small toes.
Hallux valgus, varus, and rigiditus.
Achillodynia.
Painful heel.
Pied-forcé.
Exostoses of the tarsal bones.
Erythromelalgia.
Pododynia.

Flatfoot.—The most common painful affection of the feet is flatfoot. Individuals suffering from this affection stand and walk in a manner that is characteristic. The feet are everted, the patient walks upon the inner side of the foot, the knees are flexed, and the gait is slow and heavy. The patient tires easily, and pain is usually experienced in the

instep, the ball of the great toe, or about the inner ankle. At first the pain is of a dull aching character, but later it becomes sharp and excruciating, and is accompanied by swelling. The circulation is enfeebled; the feet perspire freely, are cold, and upon inspection the tubercle of the scaphoid is more prominent.

Three degrees of flatfoot may be recognized—the mild, the medium, and the severe. In the mild variety the deformity may readily be restored by manual pressure. In the medium form the deformity is more prominent (Fig. 1.), but the arch can still be

FIG. 1.—Flatfoot, medium degree.

restored by manual pressure. In the severe variety the deformity is so great that the sole of the foot is markedly convex instead of concave, and the deformity cannot be restored by manual pressure. The amount and degree of deformity is best determined by making an outline of the foot and ascertaining the angle of deviation (Fig. 2). The foot is anointed with vaselin, and the patient stands upon paper while the surgeon makes a tracing of the edges. The impression of the surfaces is also outlined. The angle is determined by using the midtarsal joint as a base-line of measurement, and erecting upon it a perpendicular corresponding to the long

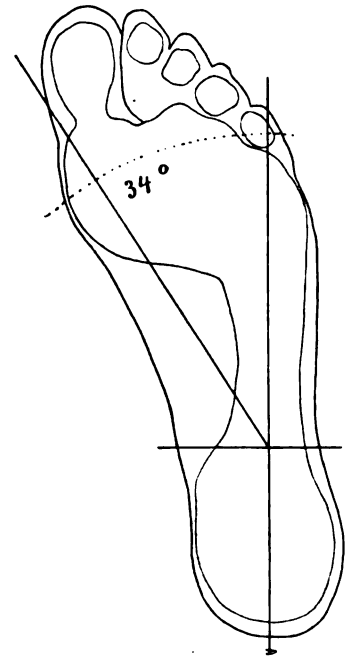


FIG. 2.—Outline of normal male foot, showing angle of deviation.

axis of the calcaneum. A line drawn from the junction of these two lines through the base of the great toe gives the angle of deviation. The average normal angle in males is $34\frac{8}{10}$ degrees and in females $31\frac{6}{10}$ degrees. In flatfoot the angle of deviation may be reduced to about 12 degrees in mild cases, and as low as 8 degrees in severe cases. In the more severe forms inflammatory changes occur in the bones and ligaments as a result of pressure.

Flatfoot is due to a relaxation of the muscles and ligaments, the plantar and the peroneal muscles, together with the long and short plantar ligaments, the calcaneocuboid, the astragalo-scaphoid, and the plantar fascia being the ones most affected. The astragalus is displaced, and this gives us the key to the deformity; and all attempts at corrective treatment must be directed toward a restoration of the position of this bone. The tendo Achillis is always shortened as described by Shaffer, and this may be considered as causative and not secondary.

Flatfoot is usually caused by a dispropor-

tion between the weight thrown upon the foot and the muscular power which supports it. The weakness of the muscles may be attributed to muscular disability, rapid gain of weight, convalescence from acute illness, and to long standing, especially upon hard floors. Rickets, infantile paralysis, locomotor ataxia, rheumatism, rheumatoid arthritis, are sometimes predisposing factors, and in rare cases excessive strain and direct traumatism are causes.

The diagnosis of flatfoot is not difficult, since it can usually be distinguished upon simple inspection. The glass table as a means of diagnosis should not be neglected. The patient steps upon a plate of glass beneath which is a mirror placed at such an angle that the impression can easily be seen (Fig. 3). A skiagraph of the foot is also

FIG. 3.—Glass table with inclined mirror.

useful, and the exact amount of deformity may be determined upon the skiagraph by the method already mentioned.

The tendency of flatfoot is to increase, crippling the patient more and more. It is most frequently confounded with rheumatism, for which patients are treated for long periods without the real nature of the affection being recognized.

The treatment of flatfoot consists in the restoration of the arch. In mild cases this is best accomplished by exercises intended to improve the condition of the weakened muscles, particularly the peroneus group. Swedish movements are of some value, and massage should not be neglected. The shoes should be elevated on the inside of the heel and sole in such a manner as to slant the foot in an outward direction. The inner side of the foot should be supported by means of a plantar spring. Many different forms of spring have been used, but the pattern introduced by Roberts (Figs. 4 and 5) is the

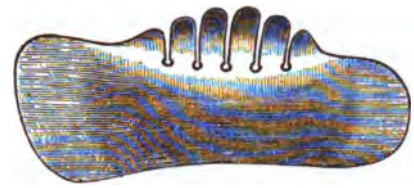


FIG. 4.—Roberts's flat-foot spring—superior surface.

FIG. 5.—Roberts's flat-foot spring—inferior surface.

one most favored by the writer. This consists of a plantar plate with a portion raised on the side in such a manner as to support the dislocated astragalus. Many different materials have been employed for this purpose, and numerous experiments by the writer about twelve years ago resulted in a steel spring covered with hard rubber which has been for sale, and largely advertised, by many instrument makers. The most recent spring used by the writer is a solid hard-rubber spring (Fig. 6) which is not affected by perspiration.

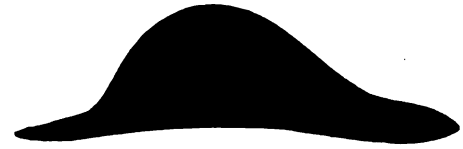


FIG. 6.—Author's latest hard rubber flat-foot spring.

In the medium cases, more radical measures are necessary. These consist in baking the foot in a hot-air apparatus, a forcible straightening by means of wrenches, screws, etc., and the use of apparatus—an ankle brace with a pad on the inner side.

In the severest cases, it is necessary to correct the deformity by forcible manipulation under an anesthetic, the foot afterward being placed in a plaster-of-Paris cast for a period of six weeks. Tenotomy of the tendo Achillis is necessary in all cases where it is found to be contracted, and operations on the bones may be performed in the severest cases.

Metatarsalgia.—Attention was first called to this painful affection of the feet a quarter of a century ago by Dr. Thomas G. Morton,* from whom it is sometimes called "Morton's toe." Attention was directed to the painful affection caused by pressure upon the fourth plantar digital nerves, but since that time the term has been extended to include pressure upon other nerves. It has since been thoroughly described by Dr. T. S. K. Morton.† The disease has not been observed until after adolescence, and women appear to be more predisposed to it than men. The exciting cause is usually excessive or unusual exercise on the foot while wearing narrow, tight, or new shoes, or from changing from a firm-soled shoe to one permitting greater motion. The pressure produces a neuralgic condition which may become neuritis. The foot is blue and cold, and has a tendency to sweat profusely. The pain is acute, and the "imperative necessity of removing the shoe regardless of surroundings when a paroxysm comes on" is regarded by Morton as a pathognomonic symptom of the disease. Upon examination a tender point may be detected by gentle pressure with the finger between the fourth and fifth metatarsal bones. The anatomical relations of the fourth metatarsal joint are such that pressure is most readily caused at this point. According to Goldthwait,‡ metatarsalgia is frequently met with in the distal extremities of the other metatarsal bones, from a breaking down of the anterotransverse arch. Comparatively few persons suffer any inconvenience from this deformity; but in a limited number of cases distressing symptoms develop, such as irregular attacks of pain, accompanied by the formation of a painful callus in the middle of the ball. This affection is more simple, more easily amenable to treatment than, and should not be confounded with, the condition described by Morton. A skiagraph is of some importance in determining the condition of the metatarsal bone. If the bone is not greatly deformed the disease may frequently be cured without resort to operation. But if the bone is enlarged the operation becomes necessary.

The treatment of this affection consists in the application of a narrow flannel bandage about the ball of the foot, and the use of proper shoes, the principle of which includes a broad rigid sole. Special shoes are sometimes made for these patients, but they cannot be described in an article of this character. They are made with cavities in the sole and with filled-up irregularities to better adapt it to the deformity of the foot. If the pain be due to a breaking down of the anterotransverse arch a small felt pad, so applied as to restore the arch, would relieve the symptom. The separation of the toes, and particularly the fourth, from the others by means of cotton or by wrapping the toes with adhesive plaster will sometimes relieve. Persons of rheumatic or gouty diathesis require medical treatment.

Operative treatment: In severe cases where there is enlargement of the articulation no treatment except excision of the metatarsophalangeal articulation will be curative. In most cases it is best to amputate the toe also, as there is no particular advantage in leaving this member, and the wound heals more quickly. The nerve may be examined at the time of operation, but removal of a piece of the nerve is not recommended for fear of progressive neuritis.

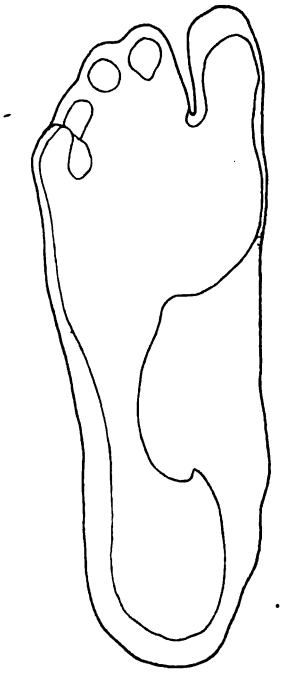


FIG. 7.—Outline of oiled foot, showing pronation without flatfoot.

Pronation.—The condition spoken of as "pronated foot" by Lovett,* Dane,† and others frequently gives rise to pain. This condition consists in a rolling in of the inner

*Surgery in the Pennsylvania Hospital, p. 107.

†Transactions, Philadelphia Academy of Surgery, March 6, 1893.

‡Transactions, American Orthopedic Association, vol. vii, p. 82.

**New York Medical Journal*, June 20, 1896.

†*Ibid.*, March 7, 1896.

side of the foot from the superincumbent weight. The fault lies with the ankle rather than with the arch. The first symptom is a weariness and discomfort upon long standing, followed later by pain, with a flushed and hot stinging sensation in the skin associated with sensitive spots. The pain sometimes radiates to the leg and thigh; and the patient sooner or later loses elasticity of gait and assumes a clumsy walk, with the feet everted. This affection is usually due to the use of improper shoes. It may or may not be associated with flatfoot (Fig. 7.).

The treatment for this affection is the same as for flatfoot, in addition to which greater stress should be laid upon the development of the weakened muscles.

Sprains.—Sprains of the foot, and particularly of the ankle-joint, frequently give rise to pain long after the acute symptoms have disappeared. This is most frequently the case after Pott's fracture of the lower third of the fibula, which is always associated with rupture of the internal lateral ligament. This gives rise to a flat or pronated foot. Sprains produced by a crushing force not infrequently lead to flatfoot, as in a case under the care of the writer, where traumatic flatfloot resulted from the crushing of the arch of a young woman by a heavy laboring man stepping upon it in a street-car.

Viewing sprains and sprain fractures from the standpoint of the orthopedic surgeon, the writer would suggest that surgeons should attempt to restore or maintain the plantar arch during convalescence from these injuries. Late ecchymoses should not be disregarded as indicating sprain fractures of the tarsal bones, and the plantar arch should be restored as soon as possible after the injury.

The treatment of these sprains consists in the restoration of the arch and the treatment of flatfoot as already described, in addition to which great benefit may be derived from the application of rubber adhesive strips crossed over the ankle-joint and applied in such a manner as to support the weakest part. Pads may be incorporated, and the application of a small felt pad directly to the skin, held in place by strips of adhesive plaster and covered with a well-fitting muslin bandage, will often relieve. Baking in a hot-air apparatus and massage should not be neglected.

Non-deforming Clubfoot.—Under the title of "non-deforming clubfoot" Shaffer has described a condition of partial equinus which has also been described by other writers as "contracted foot." The normal flexion of the foot should be 70 degrees and the extension about 135 degrees. In non-deforming clubfoot the flexion does not extend beyond 90 degrees. This condition is best tested by placing the patient with his back against the wall and requesting him to flex his foot; but flexion may be attempted with the patient in the prone position. The condition may occur at any age, but is most common in young and rapidly growing females. It is also often associated with scoliosis. Occasionally it is caused by an injury to the knee-joint which has been recovered from, and has left as a sequel contraction of the gastrocnemius. Sometimes the condition is due to spasmodic shortening of the peroneus longus, extensor longus digitorum, and the tibialis anticus muscles, as in a recent case under my care at the Polyclinic Hospital which required tenotomy. The pain is due to the strain at the points of muscular insertion, and only those contractures are permanently painful which are sufficiently severe or prolonged to deform the foot.

The treatment in mild cases consists in the stretching of the tendo Achillis by some traction brace, preferably that of Shaffer. If these means should fail to overcorrect the deformity, tenotomy of the tendo Achillis, the peroneus longus, or the extensor longus digitorum, should be performed. If the deformity be due to spastic condition from cerebral palsy, great care should be taken after the operation not to overcorrect for fear that the foot may be drawn in the opposite direction. This the writer has seen done, and the condition necessitated the division of the muscles on the other side of the foot.

Hammer-toe.—The term hammer-toe is used to describe a condition of extension of the first phalanx, and flexion of the others. This may affect one or all of the toes. If the great toe be affected the ungual phalanx is alone flexed. The condition occurs both as a congenital and as an acquired affection. The former case is usually the result of some infantile nervous disease, and the acquired variety is usually the result of wearing shoes that are too short, as a result of traumatism, or as a sequel of some nervous disease. In attempting to walk, the toes become more flexed and painful; and painful corns are formed over the interphalangeal joints. Some writers make a distinction between the hammer-toe and the claw-shaped toes met with in some cases of paralytic clubfoot,

but this does not seem to be necessary. Both the extensors and the flexors are found to be simultaneously contracted, and in some instances the phalanx fibers of the lateral ligaments of the toes, together with the plantar fascia, are contracted.

The treatment in mild cases consists in the use of a plantar plate through which tapes are passed in such a manner as to hold the toes in their normal position. This is fitted into a shoe broad, square-toed, and with a low heel. In the severe cases tenotomy of the contracted tendons is necessary, and the writer performs the operation by making an open longitudinal incision on the plantar surface at the base of each toe, and dividing the flexor tendon on a grooved director. The extensor tendons are divided by the subcutaneous method. If the fibers of the lateral ligaments or the plantar fascia are contracted, these should be divided. In rare instances amputation of the toe or toes is necessary.

Displacement of the Small Toes.—The small toes are sometimes displaced by being crowded together as the result of paralysis or the use of improperly fitting boots. One or more toes may be crowded down or up in such a manner as to make them painful and inflamed.

The treatment consists in maintaining the toe in the proper position by means of adhesive plaster, a roller bandage, or splints, and in severe cases amputation is sometimes necessary.

Hallux Valgus, Varus, and Rigiditus.—The deformities of the toes which are included under the titles of hallux valgus, hallux varus, and hallux rigiditus are very rarely congenital, being usually acquired from mechanical causes or as the result of traumatism or disease of the bones and joints, gout, rheumatism, paralysis, and burns and scars.

In hallux valgus the great toe is drawn outward, and much pain is experienced in walking, usually at the metatarsophalangeal articulation. Cramps are sometimes experienced in the foot, especially at night. The toes sweat freely, and corns and bunions add greatly to the discomfort. The deformity is usually due to improperly fitting shoes, the great toe being forced outward by the shortness of the shoes.

The treatment consists, in mild cases, in the use of an apparatus which will prevent the deviation of the great toe, protect it from pressure, and prevent injury of the nail. In severe cases an operation is necessary to restore the toe to its proper position. This consists in an excision of the metatarsophalangeal joint or osteotomy of the metatarsal bone, and in rare cases amputation of the toe. Preference should be given to excision of the joint, which the writer has found to be a very satisfactory operation.

The condition of hallux varus, or pigeon-toe, is exactly opposite to hallux valgus, in that the great toe is drawn away from its fellow and deviates toward the middle line of the body. The condition may be due to contraction of the short muscles of the great toe as a result of spasm. It is sometimes met with in genu valgum, and sometimes it is a result of equinovarus; occasionally it is an acquired affection as a result of sprinting and other athletic sports, the foot being turned in, in order to get a firmer grasp upon the ground.

The treatment is very unsatisfactory, and the best appliance which the writer has met with is that of Barton Hopkins, which is applied to the heel of the shoe, by which means the foot is turned outward at every step. Electricity and manipulation may be used, and in occasional cases tenotomy of the abductor hallucis may be performed.

The condition known as hallux rigiditus consists of an ankylosis of the metatarsophalangeal joint of the great toe. The disease begins with pain and swelling, followed by deformity, the proximal being flexed and the second phalanx extended, followed by ankylosis and atrophy. This is sometimes associated with flatfoot, but is usually the result of injury.

The treatment consists in the protection of the joint by splints, the restoration of the arch of the foot, and local applications of lead water and laudanum, or iodine, mercury, and belladonna ointment, to allay the inflammation. In severe cases excision of the joint is required to correct the deformity.

Achillodynia.—The name achillodynia has been given by Eshner* to a painful affection, bilateral, occurring in the tendo Achillis. The pain appears after walking, and is relieved by resting either in the sitting or recumbent position, but the swelling is persistent. There is usually an absence of a history of traumatism, rheumatism, or gout, but in some instances chronic urethritis is present. Attention has since been called to the affection by Albert,† Schuller,‡ and Rosen-

**Medical News*, Feb. 18, 1893.
†*Wiener Medizinische Presse*, 1892, No. 2, p. 43.
‡*Ibid.*, xxxiv, 7, p. 241.

thal.* Raynal and Kirmission have described a "peri-tendinous cellulitis of the tendo Achillis" which does not agree with the condition described, nor does it agree with the description by Pitha;† a "partial rupture of the tendo Achillis" and "partial evulsion of the insertion of the tendo Achillis," the symptoms of which agree with the condition here described, except that it is unilateral. Albert suggests that achillodynia is analogous to a condition known as "rider's strain," which occurs at the point of the attachment of the great adductor magnus. If this condition be analogous to the one met with in riders it should be more common in professional dancers, but such is not the case. Achillodynia has been ascribed to the enlargement of the synovial sac and to the presence of a neuroma between the tendon and the adjacent structures; a unilateral case of this kind has been reported. The etiology is unknown. Eshner describes the cardinal symptoms of this affection as follows: "The circumscribed character and symmetry of involvement, the thickening above the heels, the absence of inflammatory symptoms, the presence of pain only after walking, and the rapid subsidence of a first attack."

The treatment consists in rest, with direct injections of a ten-per-cent solution of iodoform-glycerin, and an antiseptic dressing. Inunctions of mercurial ointment have been used with success; if a neuroma be present it should be excised, or if a synovial bursa be enlarged its contents should be evacuated.

Painful Heel.—Severe pain accompanied by tenderness is sometimes experienced in the center of the heel about the posterior attachment of the plantar fascia. It has been described as "policeman's heel," but the writer has observed it in children. The cause is obscure, but is in some cases associated with flatfoot, or it occurs as a result of traumatism, and particularly from strain from sudden efforts, such as are made in acrobatic feats. Gout is a predisposing cause. Occasionally exostoses are met, and these probably indicate a traumatic reason for the affection, the periosteum having been torn off in some sudden effort.

Treatment does not appear to be of any service in this affection. In a recent case of double painful heel in a woman subject to hereditary gout, nothing was found which would permanently relieve pain.

Pied-forcé and Exostoses of the Tarsal Bones.—Under the title of pied-forcé, there has been described by French military surgeons a painful condition of the feet occurring among soldiers as a result of prolonged marches. Pain and swelling of the dorsum of the foot, resulting in disability followed by exostoses, particularly of the second metatarsal bone, are symptoms of the affection.

Exostoses of the tarsal bones are met with in other parts of the foot as a result of strain and overuse. The prominence of the first and second metatarsal bones which is met with in inherited gout should not be confounded with the exostoses occurring from other causes. This is a very common condition and gives rise to an exaggerated arch, considered by some as a mark of distinction. The latter is unaccompanied by pain and is a hereditary condition. The exostoses are best investigated by means of the skiagraph, and their removal is not always followed by relief.

The treatment consists in baking in a hot-air apparatus, massage, anodyne applications, and rest. The shoes may be improved sometimes by increasing the depth of the heel, and by the use of rubber soles and heels.

Erythromelalgia.—Under the name of erythromelalgia Mitchell* has described a condition of the feet characterized by excessive fatigue, at first after long walks, and subsequently after slight exertion, arising in the summer. The burning pain at first becomes severe, but is relieved by rest, coolness, and elevation. The feet are red and swollen upon the slightest exertion, with elevation of temperature, which symptoms rapidly subside upon resting. The condition is due to vasomotor paralysis of the extremities, and is most common in males over thirty-five.

The treatment consists of rest, the application of cold, resort to a cold climate, and nerve-section in suitable cases. A case of nerve-section followed by recovery is recorded by Mitchell.†

Pododynia.—Under the title of pododynia, Professor Gross‡ has described a painful condition occurring in tailors. Upon assuming the erect posture pain and tenderness of a deep seated character, increased upon pressure, is experienced. Pain is also felt in

Ibid., xxxi, 10, p. 366.

†Pitha: Billroth's Handbook of General and Special Surgery.

Medical Times, 1872, p. 81.

†*American Journal of Medical Sciences.*

‡System of Surgery.

walking and standing, the swelling is slight, and discoloration rarely occurs. This disease is in some way related to the preceding one, but its exact cause is unknown. It is probably due to the strain thrown upon the insertion of certain muscles from the sitting position assumed by tailors.

In examinations of all painful affections of the feet the surgeon should not overlook the possibility of their being due to gout, to rheumatism, or to cardiac or renal disease. The acute attacks of gout met with over the instep are often misleading, and the severe erythema which sometimes accompanies cardiac disease should be promptly recognized.

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*TREATMENT OF CROUPOUS PNEUMONIA WITH ANTIPNEUMOCOCCIC SERUM.**

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Pneumonia is one of our most fatal diseases. Osler states it "is the most widespread and the most fatal of all acute diseases."[1] Statistics are abundant showing that it rivals pulmonary tuberculosis in its high percentage of mortality. Recently, while examining the statistics of one of the large life insurance companies of the United States, the writer was surprised to find that more death claims had been paid in the year 1900 by this company for persons who died of pneumonia than from any other disease. Out of 1474 deaths, 139 were from pneumonia and 136 were from pulmonary tuberculosis.

Place.	Year.	Deaths from pneumonia.	Percentage of same.	Deaths from tuberculosis.	Percentage of same.	Deaths from all causes.	Population.
Philadelphia.....	1898	2,482	10.43	2,599	10 88	23,790	1,240.266
"	1899	2 424	10.10	2,818	11.84	23.796	1,266,832
"	1900	2,959	11.79	2,717	10.83	25,078	1,293,697
Chicago.....	1898	2,477	10.87	2,416	10.63	22,793	1,578,830
"	1899	3,438	10.34	2,516	9.87	25,503	1,638,702
"	1900	3,389	13 58	2,599	10.42	24,941	1,698,572
New York City...	1898	8,094	13.39	7,724	12.81	60,294	3,272,418
"	1899	8,531	13.06	8,015	12.27	65,343	3,356,722
"	1900	10,482	14 79	8,158	11.51	70,872	3,444,075
Baltimore.....	1898	1,039	10.00	1,061	10.21	10,385	506,398
"	1899	898	8.84	974	9 59	10,152	541,000
"	1900	1,303	12.18	1,056	9.94	10,700	541,000
Washington.....	1897	509	8 87	776	13 53	5.737	280,250
"	1898	466	8.61	667	12.32	5,415	280,250
"	1899	508	8.43	713	11.83	6,026	287,462
Total.....		48,999	12.54	44,800	11.47	390,825	21,227,074

* Read before the Philadelphia County Medical Society, and from its proceedings by permission.

While investigating the mortality from pneumonia, I wrote to the registration departments of the boards of health of five of our large cities for statistics for the past three years, showing the number of deaths, first, from pneumonia; secondly, from tuberculosis; and thirdly, from all causes; also asked for total population for each year. The above table is the result of my inquiry.

In this table I used 1897 statistics from Washington, as the 1900 reports have not yet been published.

The table shows the large number of deaths from pneumonia in the large cities; it also shows what a large percentage of all deaths are caused by this disease, even more than by tuberculosis pulmonalis or any other one disease.

I will call particular attention to the fact that in Philadelphia, in the year 1900, there were 240 more deaths attributed to pneumonia than to tuberculosis; also that 4199 more persons died of pneumonia than of tuberculosis in the five large cities, namely, New York City, Chicago, Philadelphia, Baltimore, and Washington, in the past three years.

One writer states that of all persons who reach fifty years of age in the United States, in good health, one-fourth die of pneumonia; and of all who reach seventy-five years, nine-tenths die of pneumonia.

The records of hospitals extending back forty years teach "that however varied the treatment may have been, the mortality of the disease was essentially the same."[2] Hospital statistics show that the mortality ranges from twenty to forty per cent.[3]

Pneumonia has been carefully studied at all times by the profession, and the treatment of the disease has undergone many changes in the past thirty or forty years—all to no avail, as the mortality has not lessened. "In fact, C. F. Folsom has brought forward evidence to show that in the State of Massachusetts there has been, between 1852 and 1894, a progressive increase in the death-rate from pneumonia."[4]

Frankel, in 1884, established a new pathology of pneumonia when he showed the constancy with which the pneumococcus is associated with the disease. By the growth or multiplication of this specific pathogenic organism in the lung, we have the successive phenomena of a characteristic case of croupous pneumonia, namely, "an inflammatory condition of the pulmonary vesicular walls and smaller bronchi, the direct irritative effect

of the bacterial growth, which result in an exudate filling the air vesicles, and thus interfering with the functional pulmonary circulation and respiration by mechanical pressure."[6] Added to this we have general pneumococcic poisoning, resulting from the absorption and circulation in the blood of the pneumococci themselves or the pneumococcic toxins, which microorganisms or toxins have their "varying effect on the nervous system, the circulation, and the digestive tract."[6]

Pepper in his system of medicine states that "pneumonia belongs to the class of infectious inflammations; it is an inflammation of the lung accompanied by the growth of pathogenic bacteria. The growth of these bacteria is attended with the formation of poisonous chemical products, and, according to the quantity and virulence of these products, the symptoms of general poisoning are more or less marked."[7] The specific cause of pneumonia is the pneumococcus of Frankel and Weichselbaum. It is true we may, and often do, have associated with the pneumococcus various other microorganisms, which give this disease its peculiar phases and complications. When other pathogenic microorganisms are at work with the pneumococcus, we have what is known as a mixed pneumonia, as when pneumonia "occurs in the course of, or shortly after the convalescence from, influenza. In these cases a mixed infection is present." "Again, sometimes the pneumococci and staphylococci operate simultaneously, and produce a purulent pneumonia with abscesses as a conspicuous feature."[8] So almost any combination of bacteria is possible in the lungs, and these will cause varying inflammatory conditions, and naturally will produce quite dissimilar clinical pictures. McFarland and Lincoln state "that seventy-five per cent of the cases of true croupous pneumonia are caused by the pneumococcus alone, about fifteen per cent by that in combination with the influenza bacillus, streptococcus, staphylococcus, colon bacillus, etc., and the remaining ten per cent—a very liberal allowance—by various bacteria other than the pneumococcus."[16] Professor Anders, in his Practice of Medicine, states that it is present in at least ninety per cent of all cases of pneumonia.

The pneumococcus has been found in other acute infections, as pericarditis, endocarditis, pleurisy, meningitis, peritonitis, and acute synovitis.

Outside of the body it has been found in the dust and sweepings of rooms. Pneumonia had been regarded and recognized as an infectious disease before the pneumococcus was discovered. The disease was known to occur in epidemics in jails, barracks, and schools. It was also noticed that in hospitals, patients in the next bed to pneumonia cases would frequently contract the disease.

Osler states that "the clinical course of the disease is that of an acute infection. It is the very type of a self-limited disease, running a definite cycle in a way seen only in infectious diseases."[9] Again, there is no exact proportion between the constitutional symptoms and the area involved. We may have only a small portion of the lung affected and scarcely any mechanical interference with respiration or circulation, and yet have profound poisoning.

Numerous experiments have been made on animals by different investigators, showing that susceptible animals can be made immune to the disease by injecting serum of the blood of an animal previously artificially immunized. It has also been demonstrated that this same anti-infectious serum has in a fair number of cases checked the process of the disease, when injected in infected animals. It is claimed by these experimenters that the human economy manufactures, in some way, an antidotal substance which neutralizes the poisonous substances which have been causing the elevation of temperature and other symptoms. As soon as we have complete neutralization crisis occurs.

Prognosis in croupous pneumonia depends on certain complications, as meningitis (which is nearly always fatal), endocarditis (which is very grave), and the other affections to serous membranes; and of greatest importance in determining the final termination of the case is the toxemia and mechanical interference to respiration and circulation. A fatal toxemia may occur with only a small portion of the lung consolidated; again, we may have scarcely any toxemia with double pneumonia.

The condition of the heart is an important element in prognosis. "The heart weakness may be due, (*a*) either to the specific action of the poison, (*b*) to prolonged fever, or (*c*) to overdistention of the right chamber. All three features may be at work together."[9] Osler states that absence of leucocytosis is a very unfavorable symptom. Leucocytosis is present in nearly all favorable cases.

The severity of infection in a given case of pneumonia is shown by "(*a*) the

temperature-range, (*b*) the degree of heart power, (*c*) the intensity of the nervous symptoms, and (*d*) to some extent the size of the area of the lung involved."[10]

"Death is usually due to heart exhaustion, which results from two causes: (*a*) overwork, as when an extensive area of lung tissue is involved; and (*b*) the direct effect of the pneumotoxin upon the heart."[13]

Kohn concluded that the presence in the blood of the pneumococcus adds greatly to the gravity of the disease.[11] Park says of the pneumococci: "Their presence in the blood after death has been amply proved by numerous investigators. In many instances they have been recovered from the blood during life. Lambert as a rule found them in all fatal cases twenty-four to forty-eight hours before death. This examination has considerable prognostic value, as nearly all cases in which the pneumococcus is found end fatally."[12]

Our most recent text-books on Practice of Medicine tell us that the treatment for pneumonia is expectant and symptomatic. Osler in speaking of antipneumococcic serum says: "Fortunately the serum appears to be harmless." Further, in speaking of neutralizing the poisons of the disease, he says: "We may reasonably hope that such a remedy ere long will be forthcoming." Anders, in speaking of antipneumococcic serum in the third edition of his Practice, 1899, says: "Its practical value has not yet been proven."

"The true specific which shall be applicable to all cases must either inhibit the development of the pneumococcus in the lung, by directly destroying it, or by rendering its environment inimical to its growth, or act as an antidote to the toxins produced."[14]

The serum for pneumonia is an anti-infectious serum—that is, one produced by an experiment animal in response to repeated injections with living germs. The protective power of such a serum rests in its ability to destroy living germs, of the same kind, in the body of another experiment animal, or in man. It therefore differs in its preparation and mode of action from the more familiar diphtheria and tetanus protective serums, which are antitoxic. These latter are formed by injecting horses or other experiment animals with toxic products of bacteria, not live germs. Their activity is exerted in neutralizing the toxins formed in man in disease.

The clinical symptoms of pneumonia point to the formation of a very strong poison or a milder poison in very large amounts. Experiments on laboratory animals with germ-free products of pneumonic lungs fail to show that any but a very weak toxin is formed. The same results are obtained with the products of germs grown on artificial culture media. Therefore the pneumococcus is classed as a very mildly toxic germ.

On the other hand, the live virulent pneumococci kill susceptible animals in very minute doses. When injected subcutaneously they cause death by septicemia. When injected directly into the lung through the chest wall, they cause a true fibrinous pneumonia.

Pneumococci are therefore to be classed as septic germs rather than toxic. The strength of antipneumococcic serum can be demonstrated by its ability to protect susceptible animals against many times the fatal dose of living germs.

To the bacteriologist it seems that the cocci in the blood-stream are in the position to be attacked by the antipneumococcic serum much more readily than in the exudate in the alveoli. The latter is poorly supplied with blood, and so substances in the blood would attack it with difficulty, whereas germs in the blood have only a slight chance to live, as the natural bactericidal influences of the blood are in force (though probably partly in abeyance at certain stages of the disease), and this slight chance could be taken away by reenforcement of nature's forces by the artificially produced strength of serum.

We can hope by pneumococcic serum to prevent the spread of the germs to other parts of the body, and thus prevent the frequent fatal complications of the disease. Thus Park, speaking of a number of cases observed by him, in which his antipneumococcic serum was used, says: "The number of cases is still too few to warrant the expression of a definite opinion as to the final value of this as a therapeutic agent. As a rule the cases did better than was expected, but certainly no striking curative effects were apparent. The cases did not develop pneumococcus blood infection, and it seems probable that the serum may be able to prevent a general infection from taking place from the diseased lung, even though it may fail to influence the local process."[15]

I have had several very interesting cases this winter treated by antipneumococcic serum in private practice, a brief history of which I will read.

CASE I.—Male, aged forty-five, married. Two days before my first visit, January 20,

1901, he had a severe chill while on duty, followed by lancinating pain in the right side, hacking cough, accompanied by an expectoration prune juice in character.

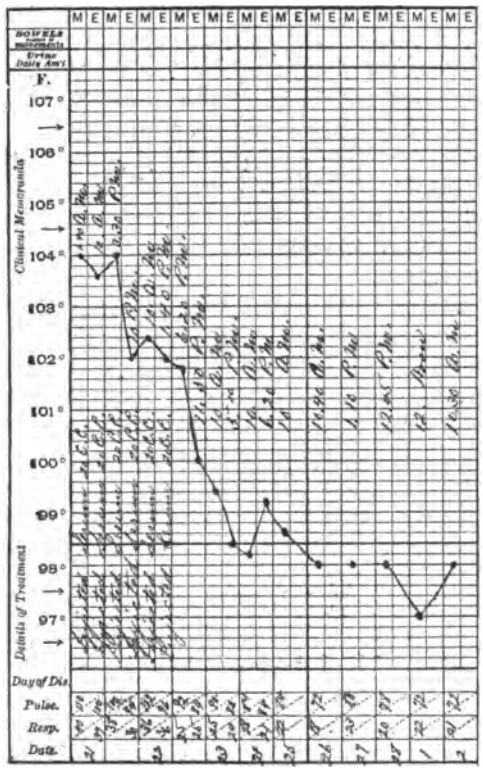
On first examination his countenance was flushed, with an anxious expression; at times he was delirious. There was severe pain in the right nipple line, also pain in right mid-axillary region; his tongue was dry and furred; herpes were present on the lips; he was nervous and wakeful; his temperature was 103° F.; pulse 120; respirations 40 to 45; sputum expectorated was streaked with blood.

Physical examination showed much diminished expansion on the right side, increased vocal fremitus, complete dulness and tubular respiration over right lower and middle lobes. Urine showed albumin and casts. Injections of antipneumococcic serum, 20 cubic centimeters every three hours until the temperature dropped to normal. This patient had sixteen injections of the serum, when the temperature was found at the normal point, and remained normal, which was about sixty hours after he was first seen. He experienced no discomfort except slight pain, at seat of injections, from the serum; but on the other hand he was quite willing to have them, as he usually slept and felt refreshed after their administration, and he became more hopeful and cheerful. Resolution followed rapidly upon the normal temperature, and in twelve days from the first visit made to his home, he was able to walk out on the street, three blocks in the sun, and has been well since, with the exception of some muscular pains about the neck and shoulders, which however disappeared upon treatment with salicylate of soda.

This patient was in the third day of his disease when the injections of the serum were begun. His temperature dropped more by rapid lysis than by crisis; each injection brought the temperature down somewhat, and it reached the normal point before the end of the fifth day of the disease, according to the best report obtainable from the patient and his family.

CASE II.—Mrs. M., aged forty-four years, mother of two children. Was called to her home on February 19, 1901, when I found her suffering with an attack of bronchitis, with a temperature of 102° F., pulse 90, and respiration 20. Lungs showed no evidence of pneumonia. Gave her appropriate treatment and advised rest in bed. February 20 I received word that the patient was better, and that I would be called if any change in her condition occurred. Did not see the patient until February 21 at 1.40 A.M., when a messenger came in haste and reported that the patient had a chill in the early evening, and "is now 'all choked up' and cannot get her breath." I suspected pneumonia from this report, so armed myself, before leaving the office, with a syringe and a bottle of antipneumococcic serum (20 cubic centimeters). I found the patient with a pulse of 110, temperature of 104° F., respiration 40. Expression anxious; flush on right cheek. Patient inclined to lie on right side; coughing constantly with rusty sputum; pain in right side of the chest; dyspnea; delirium; marked cyanosis.

Physical examination showed diminished expansion of right lung; fremitus increased; dulness posteriorly over whole right lung; bronchial breathing; râles at end of expiration. Left lung contained numerous râles. Urine contained albumin, no casts. Serum begun at once, eight hours after initial chill, 20 cubic centimeters at dose, and given at each visit; six injections of 20 cubic centimeters each were given in thirty-six hours, when the patient's condition was improved generally, and the temperature was under control, so that it seemed safe to wait for further developments.



This chart shows the pulse, temperature, and respirations under the influence of the disease as modified by the use of the antitoxin, the temperature falling by lysis rather than by crisis.

This patient improved in every particular after each injection; after the second injection a perceptible improvement occurred in the facial expression, and while we had rapid respirations and constant coughing, it did not exhaust the patient. Defervescence followed rapidly upon the fall of temperature, and the patient made an uneventful recovery.

I am indebted to Dr. Ralph Butler, resident pathologist to St. Joseph's Hospital, for the examination of three specimens of this patient's sputum. These examinations were made on February 23 and 25, and March 1, 1901. All the specimens showed pneumococci of Frankel and Weichselbaum. The specimen of February 25 showed many pneumococci and a few streptococci.

This patient took very little medicine, only stimulation with milk and whiskey; and tonic doses of strychnine and an expectorant of ammonium muriate gr. v, and mistura glycyrrhizæ composita one drachm, every four hours.

She had a bad family history, and yet made an uninterrupted recovery; was down-stairs to her meals in ten days from the time of her initial chill.

The following four cases were treated in St. Joseph's Hospital, this city. I wish to express my thanks to Dr. G. M. Marshall, attending physician to the hospital, for his kind permission to follow the treatment of these cases in the hospital. I am grateful to Dr. Melvyn Ross Taylor, resident physician, for the following histories of the cases and the observations of the treatment with the serum:

Case III.—Mr. R. R., sixty years old; occupation, machinist. Admitted to the pneumonia wards of St. Joseph's Hospital February 15, 1901. Discharged February 29, 1901. He was suffering from pain on right side of chest and cough.

Four days previous to admission patient developed a severe cold on the chest, which he regarded as not serious and continued to work. But the next afternoon he had a chill, followed by a pain on the right side; cough and marked prostration; bowels constipated. Patient before entering the hospital expectorated blood and experienced great shortness of breath.

The patient was a poorly nourished old man; intelligence fair; tongue very dry with dark-brown coating. Face slightly flushed, especially right cheek; skin hot and dry. Bowels constipated; abdomen not distended; liver and splenic dulness normal.

Chest: Heart apex beat in sixth interspace half an inch from nipple of left side. Auscultation revealed a very forcible but irregular heart, some roughening of first sound heard at apex, but no murmur. Pulmonic second sound accentuated. Pulse extremely intermittent. Arterial walls atheromatous.

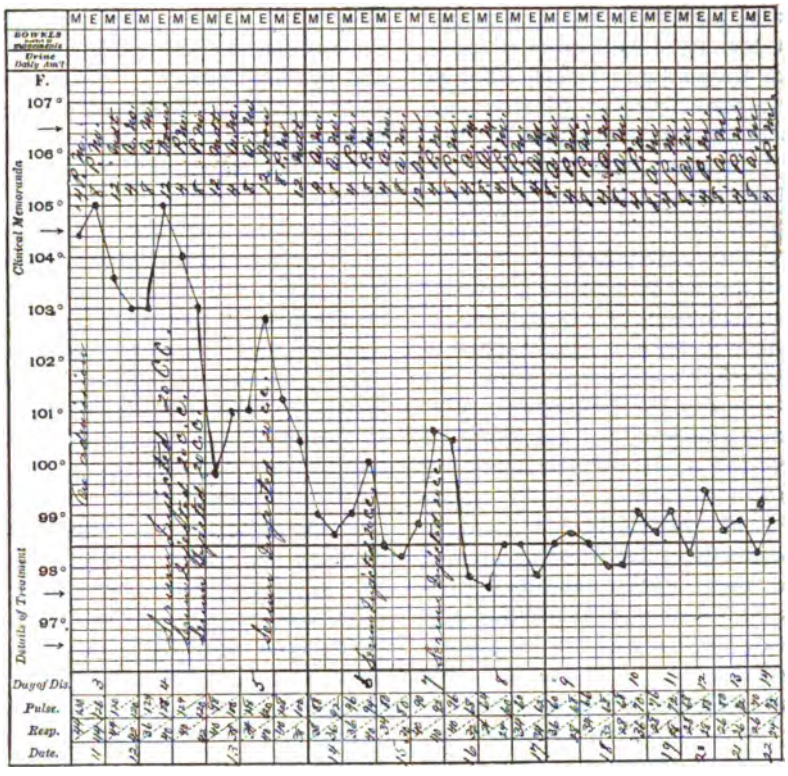
Lungs: Expansion deficient on right side; breathing abdominal in type. Palpation, vocal fremitus not greatly increased on right side. Auscultation, harsh vesicular breathing anteriorly, with crepitant râles and a friction fremitus, heard in region of nipple; posterior breathing bronchial, extending over base of right lung. Percussion dulness anterior over base of lung, and flatness posterior in same region. Vocal resonance greatly increased at base of right lung. Pneumococci were present.

Urine: Specific gravity 1019; reaction alkaline; albumin, none; sugar, none; hyaline and dark granular casts.

Patient was given a milk diet, and strychnine and quinine. Antipneumococcic serum, 20 cubic centimeters every six hours, begun on sixth day of disease. But three injections were given when temperature reached normal, twelve hours after first injection, so they were discontinued. Patient did not object to serum being injected; he breathed with less difficulty after second injection.

Case IV.—A. M., female, aged sixteen years, was admitted to the hospital March 11, 1901, suffering from pain in the left side of chest, and cough. The patient was feeling well up to Friday, March 7, when she began to have headache, also chilly sensations, but no distinct chill. Pain was present when she took a deep breath (on left side in region of nipple); cough was slight. The symptoms all became worse, so that she was obliged to go to bed a few hours later. She was a well nourished, intelligent girl. Face flushed, more on left side than on right; herpes on lips; tongue dry and coated, edges red; eyes bright; respirations hurried, but not labored; slight cough, suppressed. Skin hot and dry; bowels constipated; abdomen somewhat distended. Liver and splenic dulness normal; no rose spots. Pneumococci found. The urine was acid; a trace of albumin and a few hyaline and granular casts were present.

Chest and lungs inspection: Expansion diminished in left side; broken respirations, 44. Palpation, vocal fremitus slightly increased on left side. Percussion, marked dulness extending from clavicle in mid-clavicular line to two fingerbreadths below nipple. Impairment of resonance posteriorly throughout the whole left lung. Auscultation, crepitant râles heard at apex of left lung; bronchial breathing over base of upper lobe. The heart was very rapid.



CASE IV.—Chart showing the effect of the serum on the course of the disease.

Serum treatment was begun on the fourth day of the disease, when temperature was at 105° F. Three injections given four hours apart, when temperature dropped to 100° F. At this time the supply of serum at the hospital was exhausted and discontinued, when the temperature rose to 103° F. in the next sixteen hours. It was promptly reduced by another injection. Twice after this the temperature took an upward course, and was quickly brought down by the serum. This patient was very much relieved of the feeling of suffocation and pain in the chest by each injection, and was very willing to have them administered. She slept peacefully after the remedy was applied. She is yet in the hospital; her lungs have entirely cleared, and she is rapidly convalescing. She had six injections of the serum. Four days after the last injection an erythematous rash appeared on the surface of the body. It first appeared while digestion was going on, about one hour after food, and disappeared about the time that digestion was finished. It appeared and disappeared in this way for perhaps thirty-six hours, after meals. It caused no special disturbance except a slight burning and slight itching in the skin.

CASE V.—M. T., female, aged fifty, was admitted to St. Joseph's Hospital March 16, 1901, complaining of pain in right side of chest, cough, and debility. On Thursday (two days before entering the hospital) she was seized with a chill which lasted half an hour. She, however, had not been feeling well for some days previous. After the chill, pain in the right side was experienced and a slight, dry cough. Patient also had a slight hemorrhage from the lungs. The bowels were constipated.

The patient is poorly nourished. The face was somewhat flushed, complexion sallow; tongue dry and coated; skin slightly jaundiced, dry, and hot; eyes bright.

Chest: Heart rapid in action, both sounds strong and full, no murmur; heart not involved; apex beat of heart in left interspace

one and a half inches below nipple on parasternal line. Lungs, expansion diminished on right side; vocal fremitus markedly increased all over right side. Percussion, hyperresonant note in region of apex of left lung; very little, if any, impairment of resonance anteriorly on the right chest, but posteriorly over base of right lower lobe it was marked, and extended upward, gradually diminishing. Auscultation gave absence of vesicular murmur posteriorly over lower portion of right base, and above over middle lobe; crepitant râles with harsh vesicular murmur; also prolonged expiratory sound.

Pneumococci were found. Urine: Albumin present; sugar, none; specific gravity 1015.

Antipneumococcic serum, 20 cubic centimeters every four hours, was begun on the third day of the disease and continued until temperature reached the normal point. Temperature 98⅘° second day after admission; patient also felt more comfortable; breathing much easier. She objected somewhat to serum inoculations owing to slight pain of injection. She had five injections in all. She is yet under observation in the hospital. Her lung has entirely cleared. She sat up out of bed on the 26th day of March, ten days after her admission to the house.

Case VI.—J. F., aged forty-one. Admitted to St. Joseph's Hospital March 18, 1901; died March 22, 1901. Patient had used alcohol in excess, and had lost in weight; also had night sweats and cough for a long time.

On Wednesday, March 13, patient was taken with a chill; he, however, had not been feeling well before this. For two weeks he had been suffering from influenza and a cough, but continued to work. After the chill he experienced pain in the right side; also expectorated blood in large quantities; and was compelled to take to his bed at this time.

The skin was somewhat jaundiced; eyes bright; patient delirious; tongue dry and heavily coated; heart action rapid, no murmur. Lungs: deficient expansion on right side, local fremitus slightly increased. Percussion: slight impairment of resonance anteriorly; also impairment over base of right lung posteriorly. Bronchial breathing, anterior and posterior. No crepitant râles; friction fremitus at base of lungs. Pulse 104; respiration 30; temperature 103⅘°.

Examination of the urine showed albumin and hyaline casts.

This patient was sent to the hospital from Darby, and was practically moribund when admitted. He refused all food, and had to be fed by the rectum. He answered no questions, was unconscious all the time he was in the hospital. He was suffering from meningitis, and had had an attack of influenza before coming to the hospital.

Serum treatment was begun on the eighth day of the disease, and was given every four hours, 20 cubic centimeters at an injection. It produced no appreciable effect on the temperature, pulse, or respiration. The nurse on duty, however, made a note on the chart that she noticed somewhat of an improvement in the man's condition after each injection of the serum.

This patient died of heart exhaustion due to toxemia. He also in the last twenty-four hours of his life suffered from uremia, as the kidneys refused to secrete any urine.

This was a very unfavorable and absolutely hopeless case from the start. We wished to make a test of the value of the remedy in a severe form of toxemia, and consequently put this man on the treatment.

Physician.	Place.	No. of cases treated.	Recovery.	Died.	Where recorded.
Wilson	Philadelphia, Pa.	18	14	4	*Journal of the American Medical Association*, July, 1900.
Kelly	Philadelphia, Pa.	1	0	1	*Journal of the American Medical Association*, July, 1900.
Thayer	Boston, Mass.	37	34	3	*Progressive Medicine*, March, 1899.
Conly	Baltimore, Md.	4	4	0	*Maryland Medical Journal*, March, 1900.
William B. Little	Lynn, Mass.	1	1	0	Read at Essex County District Society, December, 1900.
Fanoni	New York, N. Y.	5	5	0	*New York Medical Journal*, August 26, 1899.
E. Rosenthal	Philadelphia, Pa.	9	7	2	Personal communications.
C. Hampton Jones	Baltimore, Md.	14	13	1	Personal communications.
James Bosley	Baltimore, Md.	1	1	0	Personal communications.
Philip A. Bunte	Philadelphia, Pa.	2	2	0	Personal communications.
Allen J. Smith	Galveston, Tex.	1	1	0	Personal communications.
B. W. Goldsborough	Cambridge, Md.	4	4	0	Personal communications.
T. V. Crandall	Philadelphia, Pa.	3	2	1	Personal communications.
T. Newton Snively	Philadelphia, Pa.	6	5	1	Proceedings of Philadelphia County Medical Society.
Total		106	93	13	

The above table shows the success that has followed the treatment of pneumonia with antipneumococcic serum. It is only by carefully reporting each case treated with the serum that we will be able eventually to judge of the value of the remedy as a therapeutic agent. I would urge upon all users of the remedy to report their experiences with it, so that we can make collective investigation the same as was done with diphtheria antitoxin. I believe it is in private practice that the remedy will be found of greatest value, as there we see our cases early and usually find them well nourished and not overworked. Hospital patients, as a rule, come under observation late, and the disease has had time to make deep inroads on a constitution ill prepared to resist any infection.

In making up this list of 106 cases of pneumonia treated with the antipneumococcic serum, I communicated with a number of physicians, and I desire to express my thanks to them for the courtesies they have extended to me in answering my inquiries.

Dr. C. Hampton Jones, of Baltimore, Md., reported fourteen cases with one death. In commenting upon his experience, he states that he noticed in all cases where the serum was used that there was a prompt lowering of the temperature, the pain was checked, and the character of the sputum was changed; it was not so rusty and was less in amount. He also makes mention of the fact that the chlorides of the urine were increased after the injection. His fatal case was that of a colored patient who was really hopeless when first seen by him.

A careful study of the literature on the subject of serum therapy in the treatment of pneumonia, and the observations of the few cases that we have had the pleasure to watch, would lead us to the following conclusions: (1) That the serum is harmless even when administered in large doses. Wilson reports having used 400 cubic centimeters or more in three cases; one case received 460 cubic centimeters under his care; there was no mention of any bad effects attributed to the serum in his eighteen cases treated at the German Hospital. All observers speak of the serum as harmless. Case I, in my series, received sixteen doses of 20 cubic centimeters each, 320 cubic centimeters in all, in less than sixty hours, and showed no bad effects whatever. (2) That the action of the serum is favorable, especially in early cases, and markedly so where we do not have mixed infection, and where a freshly drawn serum is available, and where it is used in sufficiently large doses. Dr. Wilson speaks of this in the following way: "The immediate effects were more favorable and more marked in recently drawn serums than in that which had been drawn for a long period. They consisted in general in lowering the temperature and pulse frequency, mitigation of pain, and tendency to drowsiness. Several of the patients expressed themselves as feeling better after the injection and seemed to be anxious for the time when it should be repeated."[20] Our own experience with the serum has impressed us favorably. It certainly lowers temperature, relieves pain, ameliorates symptoms, shortens the attack by hastening crisis, brightens the patient, and starts him earlier and more surely on the road to recovery.

The symptoms of pneumonia show that we have a rapidly developing disease to combat. When sick only a few hours, our patients have a temperature of 104° F., respiration 40 or 50, and they show every evidence of toxemia. Any remedy to be of value in counteracting or inhibiting the onslaughts of such a disease must be given in large and frequently repeated doses. McFarland says: "We found that small doses of the serum did but comparatively little good; it should be administered *ad libitum* until a large total amount of the serum is given."[17]

Again, we cannot expect results if the treatment is delayed until the disease has had time to do its destructive work on the various organs, as the heart muscle or the endocardium, etc., or until we have profound toxemia. We cannot expect the remedy to restore tissues that have been destroyed by the disease, nor can we expect it to undo the damage that has been done before it is administered; while it may awaken the recuperative processes in the system, it cannot restore tissues or cells that are dead. Antipneumococcic serum is supposed to combat the pneumococcus alone and is not a general germicide, so could not be expected to have the same effect when we have mixed infection, as where only the pneumococcus is engaged.

The serum is known to lose its strength after a few months, and thus becomes unreliable if very old. The freshest possible serum should be used, and used early in large doses. It is supposed to increase the leucocytes in the blood. In all favorable cases of pneumonia, nature produces leuco-

cytosis; if the serum has the same effect it assists nature in restoring herself and combating the ravages of this specific infectious disease.

Wilson notes in the history of his first case at the German Hospital that "before the serum was given the white blood-corpuscles numbered 23,200; after three injections they were 42,400, and remained at this point for three days, when the serum was omitted for twenty-four hours, and the leucocytes dropped to 23,320; upon resuming the serum the leucocytes again became 44,000."[18] Dr. A. O. J. Kelly says: "The action of the serum, however, seems favorable rather than otherwise. . . . The serum seemed to exert a marked influence in the production of leucocytosis." The leucocytes were increased from 6770 to 33,400 after seven injections of 20 cubic centimeters each in Dr. Kelly's patient.

Dr. William Park and others have expressed the hope that the serum will be able to prevent a general infection from taking place by reason of its anti-infectious properties. The serum of human blood is germicidal normally and resists infection, but its resisting power is overcome to a certain extent when infectious diseases develop; when the germicidal properties of the blood have been completely overwhelmed by the toxemia and the destructive power of this pathogenic microorganism (as in fatal pneumonia), the pneumococci have been found circulating in the blood. It is in such cases that an early and vigorous treatment may awaken the recuperative processes of nature and assist in the destruction of the pneumococci in the blood, and thus diminish the complications which are the greatest factors in determining the mortality. We know that many of the complications are caused by the pneumococci circulating in the blood and causing infection elsewhere than in the lung. We know that an animal's resisting power to infection of living, virulent pneumococci can be increased many times by first injecting it with antipneumococcic serum. We also know that an animal infected with pneumonia can be saved with a sufficiently early and large dose of antipneumococcic serum. Why not man?

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1617 N. BROAD STREET.

THE INITIAL STAGES OF COXA VARA.

SCHAUZ (*Zeitschrift für Orthopädische Chirurgie*, Band 8, Heft 1) reasons by analogy from the state of affairs in scoliosis that coxa vara must also have a preliminary state of development. As a matter of fact he finds that it shows itself at the age of fourteen, most frequently in males, unlike the preponderance of females in scoliosis. This discrepancy, he thinks, is only apparent, and is accounted for by the fact that only the males present themselves with advanced objective phenomena, since the females are not exposed to the severer insults as the male in the pursuit of his duties, and because the former soon yield on the advent of any disquieting symptoms of locomotion. Consequently in females the disease hardly gets beyond the initial stage.

From eight instances, all females, ages ranging from seven to seventeen years, the author has projected a picture of incipient coxa vara, characterized by bilateral limping, attended with pains radiating to the knee when standing, disappearing in the recumbent position; no starting pains, no spasms, motion limited only in one or two directions, viz., abduction and external rotation, slight atrophy of the hip muscles. With all of these there is as yet no elevation of the trochanter major, and that very slightly, if at all. Other closely allied diseases of the hip are ruled out for the want of the usually associated phenomena. Since so little can be done in the well developed cases of coxa vara adolescentium, great stress is laid on the recognition of coxa vara before objective deformity has set in—*i.e.*, at puberty, when by slight correction the properly directed statical forces can alone prevent the onset of deformity.—*Annals of Surgery*, January, 1901.

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Leading Articles.

TAPPING IN PLEURAL EFFUSION.

It is not many years since we were taught by leaders in medical thought to relieve, or attempt to relieve, effusion in the various spaces lined with serous membranes, such as the pleural cavity, abdominal cavity, and the pericardial sac, by the administration of concentrated saline purges or the employment of hydragogue cathartics derived from the vegetable kingdom which would cause such an outpouring of fluid into the intestine as to result in the absorption, owing to concentration of the blood, of much of the fluid which was present in the spaces alluded to. Constantly increasing experience has, however, shown that the administration of purges for the purpose of causing the absorption of serous exudates is followed in but a small proportion of cases by successful results, and that the persistent use of these purgatives not only fails to remedy the condition for which they are administered, but too often produces a condition of exhaustion and depression which, when added to that already present, owing to disease, is distinctly harmful to the patient. In many instances a knowledge of the pathological process associated with the outpouring of fluid into these cavities shows that it is futile to expect purgatives to exercise any influence toward absorption, for autopsy not infrequently reveals the fact that the pleura, the peritoneum, or the pericardium, is so covered by a plastic exudate that the lymphatics through which absorption must take place are completely occluded, entirely preventing any concentration of the blood by purgatives from resulting in the taking up of the liquid which is abnormally present.

Any one who has seen the pleural membrane covered by a thick exudate must always regard the possibilities of absorption under the influence of purgatives as being distinctly theoretical, and although it is true that nature very frequently causes the absorption of such exudations without the administration of drugs, this change takes place only in those cases in which other alterations connected with absorption have primarily taken place in the lymphatics supplying the surrounding tissue. We believe that it is the duty of the physician in all cases of pleural effusion to allow two or three weeks at least to elapse before he interferes in any way with the fluid. It is of course best that this fluid should be absorbed through physiological processes if that is possible. If symptoms develop which indicate that the fluid is present in sufficiently large quantities to cause dyspnea or to interfere with the action of the heart or the other organs which are adjacent to the part involved, then aspiration should immediately be resorted to. It is usually held that even if such symptoms are not present and the effusion is in the chest to the height of the third interspace the fluid should be removed, since such a large quantity of fluid cannot fail to produce pressure which will exercise a deleterious influence upon surrounding parts.

When fluid is in the thorax it goes without saying that the proper method of removing it is by aspiration, but it is not our purpose at this time to go into a text-book description of the technique of thoracentesis. We do wish, however, to call attention to a mistake which we believe is commonly made in the performance of this operation, namely, that the fluid is drawn off too rapidly. This happens for several reasons. In the first place, aspiration into a vacuum causes a very free flow of fluid into the aspirating

bottle. In the second place, the operation is nearly always performed without an anesthetic, and the patient's alarm and discomfort causes him to wish that the operation be speedily performed and hurries the physician in its performance. As a result, the fluid is removed so rapidly that neighboring parts are suddenly, rather than gradually, relieved of pressure, and secondary changes result, either because the lung expands too rapidly and tears itself free from adhesions, or the blood-vessels which have been pressed upon by the fluid become unduly engorged with blood when the pressure is removed, and the heart, which may have been disabled very considerably, is suddenly restored to its normal position with the result that distinct circulatory impairment at least temporarily ensues. Further than this, we believe that the sudden withdrawal of fluid under these circumstances not rarely results in an immediate outpouring of additional liquid from the relaxed vessels of the parts involved.

It is also a noteworthy fact that when only a small proportion of the total fluid present is withdrawn by aspiration, this operation often causes the absorption of the balance without any additional interference, since, as soon as undue pressure is relieved, physiological functions can assert themselves and normal processes of absorption go on. Of course, these remarks do not hold in any way in regard to the accumulation of pus in the thorax or elsewhere in a cavity lined by a serous membrane. Under these circumstances, free vent to the pus should be given by means of an incision rather than by any aspiration process, since it is only by the establishment of thorough drainage that relief can be obtained. Often in these cases, however, it will be found wise to relieve intrathoracic pressure by aspiration of the pus, and then a few hours afterward to provide free drainage and the removal of the balance of the pus by a properly placed incision, since by this means readjustment of the thoracic organs takes place gradually rather than suddenly, as when pus under pressure in the thorax is suddenly given vent through an incision.

PATHOLOGY, PROGNOSIS, AND TREATMENT.

We have placed these words at the head of this editorial note because they seem to be appropriate after having read an article on the "Prognosis of Acute Disease" by R. Hingston Fox, of London, which is published in the *Edinburgh Medical Journal* for March. After discussing the various influences which govern the question of prognosis during the course of benign and malignant acute diseases, he goes on to point out how frequently a knowledge of the pathology of a malady will lead a physician to an unfavorable prognosis, because it seems incredible that such grave organic changes can take place without death being assured; while, on the other hand, it not infrequently happens that notwithstanding the gravity of these changes the extraordinary recuperative power of nature produces a recovery, to the amazement of the pathologist and clinician. It is stated that Sir Andrew Clark used to say that no healthy adult under the age of forty years ought to die of acute specific disease, and doubtless this is true of a certain proportion of cases. But in its consideration we must remember that oftentimes the vital resistance of the body is very seriously impaired through excess of work or excess of dissipation, and that the nature of the infection is sometimes so virulent that recovery is almost out of the question. There is something about the reaction of a patient to the employment of medicines when they are properly used which it is difficult to describe; and there is something about the atmosphere of a patient which often leads a skilful physician to an opinion which he is unable to support by very good reasons for its existence. Thus Fox quotes the story of Ian Maclaren, in which the London doctor says of the patient, "I give him six hours, more or less;" but the shrewd wit of the country doctor pulled him through. So, too, in relation to treatment, while we should never be too optimistic in regard to the effects produced by drugs, we must, on the other hand, not be utterly hopeless of the effects which may accrue from their use. As Fox well says, "we must not be satisfied with doing nothing, but with hindering nothing, and often in addition we can actually add to the patient's chances of recovery." In conclusion he quotes the late Dr. Sutton: "Doctors who look too much on morbid anatomy, the dead side of disease, are apt to give too gloomy prognosis. They cannot trust the human body." It behooves us therefore not to be too optimistic as to the power of our remedies, nor too pessimistic as to the effects which they may produce.

THE REAL EFFECT OF ALCOHOL.

There can be no doubt that during the last ten years a large amount of scientific research has been devoted to determining if possible the actual effect of alcohol upon various organs in the body; and there can also be no doubt that most of the results which have been obtained from these methods of research have seemed to prove very conclusively that many of the ideas held by the medical profession and the laity concerning the therapeutic value of this substance are erroneous and based upon improperly collated facts, or upon distinct errors in judgment, as to the results produced by its use. During this period there have, of course, appeared a large number of papers, many of which were not scientific, either in the method of their presentation or in the array of facts which were adduced; and with these papers, which have usually been written by fanatical opponents of the drug, or by those who are unduly enthusiastic concerning its effects, we shall have nothing to do at this time.

Just at present there is probably no one, of higher scientific reputation, who seems to be more strongly opposed to the common views held concerning alcohol than Schmiedeberg, who is the Professor of Pharmacology in the University of Strasburg. This celebrated investigator holds that alcohol belongs to the class of nerve and muscle poisons of the fatty series, and that it is a part of the special group which is made up of such substances as chloral hydrate, sulphonal, paraldehyde, and anesthetics like chloroform and ether. Not only is this conclusion reached because of its chemical relationship to these substances, but also because he believes that its physiological effect is to a large extent identical with them. In other words, Schmiedeberg believes that when we speak of the stimulating effects of alcohol we are speaking of something which practically does not exist; and as lately as 1895 he has asserted that the intellectual faculties, instead of being made more acute and perfect under the influence of moderate doses of alcohol, are distinctly impaired. Other investigators have shown that while a person seems to perform mental labor with greater readiness under the influence of alcohol, in reality he accomplishes less. So, too, other experimenters, chiefly in the French school, employing the dynamometer, or Mosso's ergograph, assert that while alcohol increases the working power for the first fifteen minutes, it afterward produces a depressant influence, and that an actual decrease results in the amount of labor performed in an hour.

So far as the influence of alcohol upon the heart is concerned we do not think that a large amount of scientific evidence has been adduced to prove that it has no such stimulating influence as has usually been attributed to it, and some of the investigations which are quoted as indicating that the influence of alcohol upon the circulation is not stimulating are certainly inadequate. Schmiedeberg, whose opinion from a pharmacological point of view is certainly worthy of great respect, denies that this drug produces even a quickening of the pulse, apart from the stimulating circumstances under which alcoholic drugs are usually taken, and thinks that any benefit which occurs in cases of cardiac weakness or relaxation of the heart muscle under its use is not due to the stimulant influence of the medicament so much as to its effect upon the respiratory functions.

Careful researches as to the effect of alcohol on the respiration are also lacking, but no less an investigator than Binz has asserted that it is a distinct stimulant to the respiratory center.

When we come to a consideration of the influence of alcohol upon the tissues of the body there is a still greater difference of opinion between investigators, and as has been well said in the *Edinburgh Medical Journal* for March, 1901, by J. Mackie Whyte, the question as to whether alcohol is a food or a poison is still a matter of as hot debate as it was twenty or thirty years ago. Whyte points out that moderate quantities of alcohol—that is to say, about two ounces—are usually oxidized in greater part in the body of the strong, well developed man in the course of twenty-four hours, and because of this oxidation it has been claimed by many that a transformation of potential into kinetic energy takes place, which kinetic energy may be employed to produce heat, functional activity, or ordinary voluntary exertion. He also quotes Atwater's experiments, which are now so well known, and which were published in the Bulletin of the United States Agricultural Bureau, No. 69, about eighteen months ago, which seem to indorse the view just expressed. Whyte, on the other hand, seems to think that the administration of alcohol to the average individual is distinctly deleterious, and that it usually results in impaired resistance to the attacks of infectious

diseases. He then goes on to point out how those who abuse alcohol are peculiarly susceptible to diseases such as pneumonia and tuberculosis, and that animals which have received considerable quantities seem to be unduly susceptible to the infections of anthrax, tubercle, and diphtheria.

These facts must be regarded with much care. There is a great difference between a consideration of the influence of alcohol in impairing vital resistance when it is taken constantly and in poisonous doses, as by the ordinary drunkard, and when it is used rationally by the skilful physician. So, too, in many instances when alcohol has been administered to animals and has been found to impair their vital resistance, a careful study of the experiment reveals the fact that the doses given to the animal have been inordinately large and far in excess of those which are commonly taken by man, even when he abuses this drug. Thus, as much as six ounces was not infrequently administered to some dogs, and as the average dog probably weighs from ten to fifteen kilos, and the average man five times as much as this, this dose will be the equivalent of ten ounces, which while it might not be excessive if distributed over twenty-four hours, would be excessive if given in one dose or if continued daily for a long period of time amounting to weeks or months. Just at this point the experimental evidence which has been adduced seems to be particularly antagonistic to the clinical evidence, which is usually regarded with favor. Physicians innumerable administer alcohol during the course of infectious processes with the idea that it supports the system and aids the patient in withstanding infection. It would seem scarcely credible that the combined experience of thousands of physicians can be erroneous, and that the results of a few experimenters can be correct, although, of course, it is true that if the drug is abused it does harm.

We have written this editorial without being able to adduce any very good grounds for doubting the series of experiments which we have touched upon. We are forced by the standing of the various investigators whom we have quoted to pay respectful attention to the views which they advance. But we are also forced by what we have seen at the bedside to the conclusion that alcohol is a valuable drug in many conditions in which, so far as our present knowledge goes, a stimulant seems to be urgently required; and we certainly shall continue to use it as a stimulant in cases in which we believe that it is indicated until it can be clearly shown that the symptoms produced by it, which we have been wont to consider favorable, are really unfavorable, and that the drug possesses none of the qualities which have hitherto been assigned to it.

A METHOD OF TREATMENT IN GYNECOLOGICAL CASES.

It is one of the encouraging signs of the times that those persons who are wont to designate themselves homeopathic practitioners are of their own free will using more and more each year those measures which increasing experience in the realm of regular medicine has proved to be efficacious. One of the chief reasons for this is that regular practice is becoming more accurate and rational through various discoveries which are being made concerning the etiology and pathology of disease, with the result on the one hand that the so-called regular school is becoming more scientific in its methods, and the so-called homeopathic practitioners, seeing the reason for our procedures, naturally turn to them in treating ills depending upon really serious conditions. As a result some of the homeopathic schools now confer upon their graduates two degrees: one, that of Doctor of Medicine, and the other, that of Doctor of Homeopathic Medicine, and claim that by so doing their graduates have an ethical right to practice whatever they please, with a touch of homeopathic practice whenever that is desirable. These privileges have, of course, always existed for regular practitioners.

Our attention has once more been called to this matter by an article in the *American Journal of Obstetrics* by Dr. James C. Wood, who describes a method of treatment in gynecological cases which he has found of use. Many of these cases are suffering from minor gynecological ailments, and therefore do not need any very radical treatment, but every practitioner is aware of the fact that women suffering with these symptoms are apt to come to his office for local treatment. Much of the local treatment has at times been inefficacious or harmful. For these conditions Dr. Wood describes the methods which he carries out, which are all of them anything but homeopathic, although he is Professor of Gynecology in the Cleveland Homeopathic Medical College. It is because these methods of treatment seem rational,

and not limited to any peculiar ideas in regard to influence of drugs in disease, that we call the attention of our readers to them.

Dr. Wood states that he is much dissatisfied with the methods of swabbing and tamponing, and strongly recommends the method of hand-spraying originally commended by Dr. Skene. Whether the leucorrhea be due to gonorrhea or other causes, he sprays the vaginal walls through a fenestrated speculum with a fifty-per-cent solution of peroxide of hydrogen, and it is then wiped away, so that the parts are left clean and blanched. This is followed by an antiseptic spray as follows:

Boric acid, 4 grains;
Thymol, 1-16 grain;
Sodium borate, 1 grain;
Sodium bicarbonate, ½ grain;
Oil of pine, 1-6 minim;
Eucalyptol, 1-10 minim;
Oil of gaultheria, 1-10 minim;
Oil of peppermint, 1-10 minim;
Alcohol and glycerin, of each, 2 fluidounces.

In other instances where the secretion is mucous and tough, Dobell's solution is excellent. If the condition is due to the gonococcus, weak solutions of the new silver salts are employed; and if the urethra is infected the urinary meatus is also carefully sprayed, pressure being made upon the posterior portion of the urethra with the finger so as to prevent the driving of infection into the bladder. After the spraying the vaginal walls are kept apart by a lamb's-wool tampon medicated with a ten-per-cent glycerin solution of ichthyol, and the patient is instructed to remove the tampon and take a 1:2000 bichloride douche before again presenting herself for treatment, which ought to be repeated anywhere from twice a week to every day.

In cases where the infection is non-specific and the discharge is purulent, much good can often be produced by applying a fifty-per-cent glycerin solution of calendula officinalis; or, if it is profuse and stringy, the aqueous extract of hydrastis may be employed in the same way. If there is periuterine tenderness ichthyol is exceedingly valuable. This point has already been emphasized in our pages in an article by Professor Montgomery of the Jefferson Medical College. A tampon wet with the following mixture may be introduced into the vagina high up in these cases:

Ichthyol, 1½ drachms;
Tincture of iodine, 1 fluidrachm;
Liq. hydrastis (glycerite), 4 fluidrachms;
Carbolic acid, 10 drops;
Boroglycerite (25-per-cent), q. s. ad 4 fluidounces.

It is very certain that by means of the atomizer we can force medicaments more deeply into the tissues than when they are simply applied by applicators.

THE INJECTION OF VASELIN FOR REMEDYING DEFORMITIES AND PATHOLOGICAL CONDITIONS.

Among some of the more recent procedures which are the logical outcome of a fuller comprehension as to the tolerance of the body tissues to a sterile, non-irritating substance, the most striking is, perhaps, Gersuny's method of remedying deformities and curing pathological conditions by the injection of vaselin.

The ordinary white vaselin is the preparation employed, and it is sterilized by boiling. Made fluid by heat, it is injected by means of an ordinary hypodermic syringe.

It has been used, and according to reports successfully, for the closure of orifices the sphincters of which were so wanting in power that complete occlusion was impossible. Thus incontinence of urine and feces has been cured by submucous injections of vaselin, which, by mechanically lessening the size of the orifice, made a complete closure possible by requiring but a moderate contraction of the sphincter.

The injections have apparently proved successful in the treatment of varices, producing a perivascular support which has prevented further dilatation. They have enabled the surgeon to cure the deformity dependent upon depressed scars, and to place in the regions of the face where it is most becoming a subcuticular fat layer, which obliterates wrinkles and fills in hollows. They have been used to overcome the deformity incident to excision of the jaw, to convert a flattened and sunken nose to a symmetrical organ, and it has been proposed that flat and wasted breasts may, by vaselin injections, be converted into organs sufficiently full and globular to correspond with the highest ideals of symmetry.

The ease with which the method is applied and its comparative painlessness, and, in some instances, its immediate efficacy, make it not unlikely that it may be quickly popularized. It must be borne in mind, however, that aside from the remote consequences of such treatment, consequences which are absolutely unknown, there is always the danger of embolism. In fact, even in the few cases

upon which this new method has been tried a fatal accident of this kind has already been noticed.

RADICAL CURE OF CANCER OF THE BREAST.

It is interesting to note that the statistics of malignant tumors of the breast as observed in Angerer's clinic differ somewhat from those which have been recently reported. Thus of 260 patients suffering from mammary carcinoma in the years 1890–1899, inclusive, 27 per cent were found to be inoperable, two died as a result of operation, 56.6 per cent died of recurrence, 6 per cent were living with recurrence, and 16.9 per cent were, as Gebele states, definitely cured. This percentage of radical cures would probably agree much better with the experience of most surgeons than the 40 or 50 per cent of cures which have been reported by one or two operators. It is undoubtedly true that the reason for this low percentage is incident to the fact that patients with mammary carcinoma do not come for treatment until the period for the radical cure is passed.

It is to be hoped that this delay in seeking operative help will become the exception rather than the rule when the really brilliant results of the operation practiced in the early stages of the disease are appreciated by the general practitioner and particularly by the laity. The fact that all tumors of the breast in women past forty years are probably malignant is, however, not yet recognized even by the majority of the profession in spite of all that has been written and preached upon this subject. It is not difficult to imagine that the education of the non-professional part of the community in this respect is likely to be extremely slow. Since the carcinomatous nodule is as a rule painless and is only discovered incidentally by the patient, and is usually concealed by her, because of her conviction that its painlessness and freedom from inflammatory symptoms prove a benignancy which the physician may fail to recognize, the very large majority of cases which present themselves to the surgeon for treatment are already beyond help as far as radical cure is concerned.

Complete operation not only prevents local recurrences, but when adopted early it is likely to prove entirely curative. When practiced even with all its modern elaboration in the ordinary hospital service, it is not likely to give a larger percentage of cures than that reported by Gebele.

Reports on Therapeutic Progress

IMMATURE CATARACT AND ITS TREATMENT.

In a recent issue of the *Journal of the American Medical Association* DE SCHWEINITZ in an article on this subject reaches the following conclusions:

1. Certain lenticular opacities, most often situated in the naso-inferior quadrant of the lens, occasionally are practically stationary and may be designated "non-progressive." They do not handicap the patient's ocular abilities, and may with propriety be separated from the class to which the name incipient cataract is ordinarily given.

2. Certain lenticular opacities undoubtedly depend, as Risley and others have shown, on what may be designated "disturbances of the choroid" as apart from active and actual choroiditis; and their progress is sometimes apparently checked by measures—optical, local, and general medicinal—which restore the choroid coat to normality. Such measures do not, however, remove from the lens the opacities which have already formed when the patient comes under treatment.

3. Certain lenticular opacities which appear in association with diabetes mellitus, nephritis, lithemia, and arteriosclerosis, particularly the last two diseases, are sometimes apparently retarded by measures which are suited to the patient's general condition in connection with local and optical therapeutics; but these measures never dissipate the lens-lesions already present.

4. Certain lenticular opacities produce not only prodromal myopia, but very high degree of astigmatism, the correction of which may result temporarily in a surprising improvement in visual acuity.

5. Certain lenticular opacities cause an obscuration of vision that may be largely dissipated temporarily by providing the patient with glasses moderately tinted which give the best visual acuity during mydriasis, and maintaining this mydriasis with a mild mydriatic. Sometimes, under these circumstances, the mydriasis seems to hasten maturation; this fact should be explained to the patient.

6. Certain lenticular opacities, especially in the form of striæ of refraction, cause an obscuration of vision which is somewhat relieved by maintaining a mild myosis with weak solutions of one of the myotics.

7. If the vision of eyes suffering from incipient cataract of the nuclear type is im-

proved by mydriasis, this is not a sufficient indication for optical iridectomy, unless the patient finds by observation that the increased visual acuity, as noted by test-type examination, is also advantageous in pursuing his ordinary occupation.

8. The extraction of unripe cataracts is preferable to any of the ordinary operations for ripening cataract.

9. There is no evidence that electricity has the slightest influence in checking the rate of progress of incipient cataracts, or in dissipating the opacities which have formed.

10. If there is any evidence that massage of the eyeball favorably modifies the rate of development of cataract it is still very insufficient; there is some evidence to show that massage sometimes hastens the opacification of the lens. The subject demands further investigation.

11. There are no "specific remedies" for the treatment of cataract, and there is no reliable evidence that drugs exist which cause the absorption of partially or fully formed cataracts.

12. All lenticular opacities, unless perhaps those which belong to the so-called non-progressive group, should be regarded as indications for a thorough investigation of the patient from the general as well as the ocular standpoint, and for an employment of remedial agents—optical, local, medicinal—according to the findings.

TRACHEAL INJECTIONS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

Some two years ago we published in the GAZETTE an original contribution on this topic. Recently MURRAY has published in the *New York Medical Journal* of February 9, 1901, his own experiences. He tells us that A. T. Modestoff, of St. Petersburg, was, it is thought, the first to put the intratracheal method of introducing remedies into the human organism upon a scientific basis. He maintained, as the result of many experiments upon dogs, that remedies so introduced penetrated to the farthest limits of the respiratory space. In 1888, we hear from Garrel, Boteq, and others, advocating the intratracheal administration of creosote in cases of pulmonary tuberculosis. In 1889 Downie, of Glasgow, read a most interesting paper before the Medical and Chirurgical Society upon this subject. The injection used by him was twelve per cent of menthol and two per cent of creosote dissolved in olive oil. Of this as much as two drachms was injected at a sitting daily. He says that "out of forty cases so treated, all expressed feelings of benefit in several ways."

In describing the results of his treatment he observed that the patients breathe more freely, and where tightness or a feeling of constriction about the chest is complained of, this is rapidly relieved by the menthol injection. There is less inclination to cough.

"The patients at the infirmary say that they cough none at all for from four to eight hours after the injection, and if it be given at bedtime, many whose sleep was previously much interfered with by the frequent recurring of cough rest the whole night long without once coughing. The expectoration becomes greatly reduced in quantity and much less offensive. In several of the cases the purulent element entirely disappeared, and what little expectoration continued to be discharged resembled the frothy expectoration of simple bronchitis. There was marked increase in weight of the patients thus treated." He has quoted Dr. Downie at length because his is the best exposition of the subject that he has seen, and accords so nearly with his own experience.

The most recent contribution to the subject comes from Dr. Mundell, of Roubaix, who has substituted the essential oils for the usual creosote and menthol. The solution selected by him, after experiment, is the following:

> Essence of thyme, 1 drachm;
> Essence of eucalyptus, 1 drachm;
> Essence of cinnamon, 1 drachm;
> Sterilized olive oil, 3 ounces.

Of this he injects three cubic centimeters three or four times consecutively. The results reported by him, which were most satisfactory, have been to some extent confirmed by the cases of Dr. Murray.

The method of administering intratracheal injection is simple: the curved cannula of the syringe is passed between the vocal cords, and the fluid is slowly injected into the trachea. The syringe employed is the Schadel syringe. The usual effect in a majority of cases is a slight explosive cough. No instance of glottic spasm following even the first injection has been noted. Out of thirteen cases treated during the past seven months with the Mundell solution, all but three have been decidedly benefited, their cough and expectoration have been lessened, and their temperature has been lowered.

These patients were not in the hospital, and could be seen only three or four times a week, and were very poor, with all which that means in the way of environment.

The advantage of the intratracheal injection over the usual methods of treatment in tuberculosis lies in the fact that the antiseptics used enter at once the field of their labors unaltered and penetrate to the farthest limit of the respiratory space, and, coming in immediate contact with the toxins as they are generated, bring about the beneficial results described, without interfering with the digestive organs.

While it has not been undertaken to reach a conclusion as to the full value of this treatment in cases of tuberculosis, it can be fairly said that it does lessen the cough and expectoration, lower the temperature, and improve the general condition of the patient.

DIPHTHERIA AND ANTITOXIN.

The *British Medical Journal* of February 9, 1901, tells us that "the frequent reiteration of bad arguments and the spreading of misleading or absolutely false statements by antivivisectionists might be expected to have little effect on reasonable people, but there is a danger that if their 'extracts' and misstatements are allowed to go entirely uncontradicted, the public may come to believe that there is nothing to be said against them. Statements which on the face of them are utterly absurd to those who have the slightest knowledge of the subject may come to appear important to those who are as little acquainted with the facts as, in charity we must assume, are those who propagate such statements.

"We have just had placed in our hands a farrago of nonsense that is evidently being widely distributed, as copies have come from Edinburgh on the one hand, and from the south of England on the other. In this 'pamphlet,' among other ill-informed statements, there is revived the assertion that it is the carbolic acid with which diphtheria antitoxin is preserved that is the effective agent in counteracting the action of the diphtheria poison. Carbolic acid is no doubt a fairly powerful antiseptic, but it is never added to serum in a greater quantity than one-half per cent—that is, one part to 200, or only one-fifth of the strength of the weakest solution that is used in surgical treatment, anything below two and a half per cent being looked upon as too dilute to be of any service in killing active microbes. By the time this gets into the body, and can make its way to the local mischief, the dilution would be so enormous, even if 20 cubic centimeters of serum containing this half-per-cent solution were injected, that the conditions would be such as to satisfy the most infinitesimal of homeopaths. Of course, such an argument can scarcely be treated seriously, and we must apologize to our readers for drawing attention to its absurdity. On the other hand, there has now been collected ample experimental evidence to prove that not only does the carbolic acid do no good to the patient, but, to the extent to which it is added, it actually dilutes the serum, and renders necessary the use of a slightly larger bulk of fluid to obtain the same results. Whatever else those who have used this material may disagree upon, they are fully agreed on this point.

"The antivivisectionists are careful to point out that horses of low price are often used in the preparation of antitoxin, but they are not equally careful to draw attention to the fact that every one preparing antitoxin takes great care that the animals shall be of sound constitution, and not suffering from disease of any kind. Those engaged in the study of disease are too much impressed with the necessity of having sound animals not to take the greatest care to use sound animals only. A horse with a cut knee loses an enormous proportion of his value in the horse market, but he is as useful and just as good for the production of antitoxin, as soon as the cut is healed, as he was before the injury. Of course, it sounds well to talk about used-up horses, or rather it serves the turn of those who do so, but it is not honest.

"As regards the statistics of results obtained, with and without the use of antitoxin in diphtheria, we think that there can now be little difference of opinion in the medical profession in this matter. Even those who were skeptical in the first instance, and refused without the strongest evidence to accept all that was claimed for antitoxin by those who had first had experience of its use, have long since come round under the pressure of facts; and only those who have had no experience of the use of antitoxin in sufficiently large doses, and under proper conditions, still stand out against its use. We may go further than this, and say that those outside the profession whose ignorance may be excused, cannot be similarly excused for writing in an authoritative manner on a matter con-

cerning which they are profoundly ignorant, and misleading—sometimes to the death of their children—those people who can be convinced by a facile pen or fluent speech.

"We cannot condemn too strongly the efforts that are being made to prevent the use of what has now proved to be a most potent factor in the prevention and cure of a disease which only recently was more dreaded than perhaps any other with which we had to deal in this country. The first interest of a medical man is the welfare of his patient. Unfortunately, however, that is not the position taken up by the Antivivisection Society. Their chief interest appears to be to prevent anything that has to do with vivisection. The distortion of facts and the death of multitudes of helpless children from diphtheria seem to be to them mere minor details if popular opinion can be influenced against what they call vivisection."

THE PREVENTION OF VALVULAR DISEASE OF THE HEART.

The *British Medical Journal* of February 9, 1901, considers this very important theme in an editorial. It points out that the disastrous results of rheumatic endocarditis are so fully recognized that any line of treatment promising improvement on present conditions is sure of a ready welcome from the profession. Particular interest and importance, then, attach to the lecture by Dr. Caton on the prevention of valvular disease of the heart in cases of acute rheumatism, published in the *British Medical Journal* of October 20, 1900, both on account of the novelty of the methods advocated, and the results claimed to have been achieved. Dr. Caton has since published a description of his mode of treatment more fully in a recent volume. He deals solely with the endocarditis arising during the course of acute rheumatism, and divides his discussion into two parts—treatment of acute rheumatism to prevent valvulitis, and the treatment of this last when it has unhappily been incurred. The first differs little, if at all, from that practiced by the vast majority of the profession in the treatment of acute rheumatism, nor indeed does Dr. Caton claim any novelty for it. It is in the second part—the treatment of recent valvulitis—that Dr. Caton's methods are in any sense original.

These methods are described as three in number: (1) Treatment by rest; (2) treatment by stimulation of trophic centers; (3) treatment by absorbent drugs. The value of prolonged rest in recent endocarditis admits of no possible doubt, and Dr. Caton will find that many lament with him the difficulties experienced in getting patients to submit to it. A change from the erect to the strictly supine position means, on an average, the lowering of the heart-rate ten beats a minute. This entails not only ten fewer flappings together of the inflamed cusps every minute, but a corresponding lengthening of the heart's diastole, the only period of comparative rest for that organ during which recovery is at all probable. The number of cases of rheumatism in which recent murmurs disappear under the influence of rest alone is perhaps underestimated by Dr. Caton.

The second of his methods—treatment by stimulation of trophic centers—Dr. Caton thinks is possibly attained by blisters applied to the skin areas most closely associated with the heart. Such skin areas are those supplied by the first four dorsal nerves, and Dr. Caton applies repeated blisters between the clavicle and the nipple on either side. There is no indication, however, as to how often such blisters should be applied. According to Dr. Caton, the explanation of the beneficial action of the so-called "counter-irritation" on rheumatic joints is that "the irritation of the sensory nerves of the skin probably causes excitant impulses to traverse the trophic and vasomoter nerves of the part, whereby dilated arterioles are contracted, and increased activity of the natural reparative process is promoted." Assuming the beneficial action of blisters on rheumatic joints, for which there is justification, he asks: "If stimulation of the surface of the skin will so potently assist recovery in a rheumatic joint, is it not possible that the same beneficent change might also occur in the rheumatic heart if continued stimulation of its related skin areas were practiced?" It may be pointed out that his explanation of the beneficial effects of blisters on affections of the joints is far from proven, although no other more satisfactory one may be forthcoming. The analogy, too, drawn between the skin near a joint and the joint itself, and the skin areas in nervous relation with the heart and the heart itself, is not a perfect one; the blood-vessels, for instance, supplying the skin and an adjacent joint are much more closely connected than those supplying the front of the thorax and the cardiac valves.

Dr. Caton's third method, the treatment by absorbent drugs, is based on the hope that the administration of such drugs would help to remove "the new and imperfectly organized material that has been effused into the substance and upon the external surface of the cusp" of a cardiac valve. "If this effusion remains it frequently develops into permanent tissue; it may then undergo shrinkage or contraction; it may by its pressure interfere with the nutrition of the cusp, and occasion a necrosis." Of the reality of this inflammatory effusion into the valves, and the possible disasters subsequent to it, there can be no question. But there is a wide-spread and intelligent skepticism as to the power of these so-called "absorbent" drugs over the products of inflammation, the case of syphilis alone excepted. Chief among the drugs credited with such virtues come the iodides and mercury, and Dr. Caton administers sodium iodide as being "perhaps in its other effects the least injurious of these." In a few cases in which the improvement in cardiac physical signs was tardy, and the general health of the patient seemed to warrant it, he gave small doses of calomel with care, and in strict moderation. There can, perhaps, be but slight objection to the trial of these "absorbent" drugs, except in those cases in which their too early substitution for the salicylates might endanger a recurrence of active rheumatic symptoms. The iodides, indeed, and potassium iodide in particular, might prove beneficial in a way not suggested by Dr. Caton, in that by lowering arterial tension they might lessen the labor of the heart.

It is to the results claimed for Dr. Caton's treatment that chief attention will be turned, and they may fairly be termed as bordering on the marvelous. Out of thirty-one cases of rheumatism in which primary valvulitis developed under observation, twenty-eight made a good and—in all cases but two, to the best of his knowledge—a permanent recovery. In another series of fifty-five cases admitted with valvular lesions, but in which, from the physical signs and history, the cardiac trouble was judged to be recent, thirty-six left the hospital with apparently normal hearts. Such figures are, of course, open to several sources of fallacy as regards estimating the value to be placed on the special treatment pursued. As has been said, cases in which murmurs develop during an attack of rheumatism and disappear under the influence of rest alone are not very uncommon. The distinction between anemic and organic bruits, too, is not always easy, and most observers will envy Dr. Caton the certainty and precision with which he discriminates between them. Bruits dependent upon acute cardiac dilatation are possibly rare, but Dr. Caton's statement, "In my experience acute dilatation along with rheumatism is much commoner in text-books and monographs than at the bedside," is interesting, especially when the stress laid upon the importance and frequency of acute cardiac dilatation by some later writers is remembered. Exocardial murmurs, again, of a temporary character, are not infrequently hard to distinguish from endocardial murmurs likely to prove of a permanent nature. In many such ways fallacies may creep in and largely discount statistics such as those brought forward by Dr. Caton.

But even after due allowance has been made for possible errors, his statistics probably show results incomparably better than any others that may be obtainable, and ought to insure a trial of his methods by many. If further experience on his own part and that of others should confirm his present happy convictions, then he will have gained the gratitude of his profession, and saved a large section of mankind from the distressing results of chronic heart disease.

THE USE OF HEAT AS A MEANS OF DIAGNOSING THE PRESENCE OF PUS.

According to Dr. K. Lewin, of Berlin, the application of heat, while relieving pain resulting from simple acute inflammation, is found to have exactly the contrary effect when suppuration is present. Dr. Lewin has applied this observation to the solution of the question of the presence of pus in cases of appendicitis. In ten persons attacked by appendicitis where Dr. Lewin applied hot compresses for one or two hours, eight were greatly relieved, while two found their pains increased. In all the former group a spontaneous cure resulted in the course of two or three weeks, while in the others, after persistent trial of medical treatment without result, operative interference became necessary, and pus was found in both instances. The author considers that in applying the test it is important to use no other calmative means, and to keep from the patient its meaning, that the effect of the application may not be modified by any dread of an operation.—*British Medical Journal*, Jan. 26, 1901.

THE USE OF THE AQUEOUS EXTRACT OF THE SUPRARENAL CAPSULE AS A HEMOSTATIC.

In a paper published by BATES in the *Medical Record* of February 9, 1901, the following conclusions are reached:

1. The suprarenal extract is the most powerful known hemostatic, and has, when properly used, no objectionable properties.

2. When it is used locally, hemorrhage from mucous membranes can always be controlled.

3. The internal use of the extract as a hemostatic is efficient in some cases.

4. The suprarenal extract when it controls hemorrhage locally or by the internal administration, does so in less than one minute. [The latter part of the statement is hardly credible.—ED.]

TREATMENT OF ACUTE NEPHRITIS.

PERRIER states in the *Cleveland Medical Gazette* for February, 1901, that in the treatment of acute nephritis two important points should be kept in view, viz., the relief of the vascular engorgement of the kidneys, and the elimination of the toxins retained in the blood as a consequence of interference with the renal function. First, the patient should be put to bed between woolen blankets, in order to promote the free action of the skin and induce sweating. To encourage profuse diaphoresis give hot drinks freely: hot lithia waters, hot lemonade, or plain hot water. Liquor ammonii acetatis may also be given if fever be present, with tincture of aconite, or veratrum viride. The bowels should be moved freely with saline cathartics in hot, concentrated solution, this being kept up daily until improvement in the renal functions occurs. The diet should be light and at first confined to bland nutritious liquids. These measures may be sufficient in mild cases, but where the case is severe or resists the milder methods, it may be necessary to use the hot-air bath, which can be readily done with patients in bed by means of a lamp and tin pipe suitably arranged so as to have the hot air pass beneath the bedclothing.

In the severe cases there is usually nausea and vomiting, which may be relieved by hot water in tablespoonful doses frequently repeated, carbonated waters, cracked ice, kumiss, bismuth, with small doses of morphine, and sinapisms over the epigastrium. The diet should be extremely simple at first: equal parts of milk with carbonated water, kumiss, fresh buttermilk, barley water, light broths, but no concentrated meat fluids.

Where the urine is very scant or if suppression exists, hot linseed meal poultices containing a tablespoonful of mustard applied over the loins, and changed at intervals of four hours, are generally successful. In the author's experience it has never been found necessary to use leeches or cupping over the loins, so much recommended formerly.

In the nephritis of scarlatina, where uremia is threatened or has already occurred, the hot pack has been found most successful in relieving the urgent symptoms and restoring the renal functions. If convulsions occur chloroform may be used to control them after the hot pack has been applied. Hypodermic injections of pilocarpine are recommended by some authors and condemned by others. Where the heart's action is weak it is very dangerous and should not be used, but where the heart is strong and the pulse full its action in causing profuse sweating is valuable.

In the uremia of acute nephritis when all other means fail, resort should be had to that most valuable of remedies, the subcutaneous injection of normal saline solution. The amount given should be at least one quart, and repeated every six to twelve hours until relief is obtained. A fair-sized aspirating needle may be attached to the tubing of a fountain syringe, and with thorough aseptic precautions the solution injected in the cellular tissue of the breast, axilla, or thigh. Its immediate effect is to relieve the vasomotor constriction probably by diluting the toxins in the blood, and thereby favoring elimination by the natural channel. High enemas of the same solution may be substituted for the subcutaneous injection, but are not nearly so effective. The most effectual cathartics in uremia are elaterium or croton oil in one-half drop doses, repeated every hour until the bowels are freely moved. The oil may be combined with small doses of the mild chloride, and after being rubbed up with sugar of milk placed upon the patient's tongue even when unconscious.

After relief of the urgent symptoms, as the renal secretion increases and improvement follows, little medicine is needed, but the free use of the natural lithia waters should be continued and kept up for some months after convalescence is established. The diet may be gradually increased, considerable amounts of milk being given in the twenty-four hours. Farinaceous foods may

be given freely, but no meat should be allowed until albumin has disappeared from the urine, which should be examined at frequent intervals for that purpose. If the appetite remains sluggish small doses of quinine in solution, or any of the bitter tonics, will assist in restoring it. The anemia which usually accompanies renal affections will require special attention. The patient should be cautioned against exposure to cold, and advised to wear woolen or other warm underclothing to protect against sudden changes of weather. Alcoholic stimulants should not be used during the attack of nephritis, and ought to be strictly forbidden after.

THE TREATMENT OF NAUSEA AND VOMITING FOLLOWING ANESTHESIA AFTER ABDOMINAL OPERATIONS.

In the *Cleveland Medical Gazette* for February, 1901, HUNTER ROBB tells us that when vomiting occurs during the semiunconscious stage the patient's head should be turned on one side and the nurse should have a basin ready to place beneath the patient's chin for the reception of vomited or mucous material, so that any soiling of the night-dress or of the bedclothes may be avoided.

During the first six or twelve hours it will be found preferable to give the patient by the mouth nothing except small quantities of toast water or hot water, from one to two teaspoonfuls every twenty minutes. This frequency of administration is generally not only tolerated, but is very comforting to the patient from the fact that it tends to relieve the thirst which is sometimes complained of, and at times no further treatment is necessary.

When, however, the vomiting is persistent and aggravated, it becomes a most troublesome symptom, and one which taxes severely the ingenuity of the surgeon and the nurse. While the nausea and vomiting continue, the head should be on a level with that of the body, or should be only slightly elevated on a small pillow. As a rule the vomiting due to the anesthetic is over by the end of eighteen or twenty hours, and when it continues after the third day, and particularly when the fluid is expelled without much apparent effort, the possibility of the presence of a peritonitis should always be thought of. Persistent nausea can sometimes be relieved by giving two or three tablespoonfuls of very hot water containing ten grains of bicarbonate of soda. This may be repeated every hour or so, and a light mustard plaster may be applied over the epigastrium. In a certain number of cases washing out the stomach may be necessary.

The vomiting which accompanies a marked septic condition, such as a general or a localized peritonitis, is always hard to control. In the majority of cases this symptom is aggravated instead of being relieved by the administration of drugs especially directed against it, and the treatment of the accompanying constipation or tympany is always of importance and at times most effectual. As a last resort, it may be necessary to give a hypodermic injection of morphine over the epigastrium for the relief of the extreme retching, if there is reason to fear that this distressing condition will otherwise soon exhaust the patient.

Only in exceptional cases does vomiting occur more frequently than three or four times during the day following the operation, even after severe operative procedures have been carried out. The persistence of this symptom for three or four days is always strongly suggestive of a peritonitis.

Among 114 consecutive abdominal cases analyzed, without a death, in eighty there was a slight amount of nausea and vomiting during the first few hours after anesthesia. In no case was the condition severe, and this symptom generally ceased as soon as the general effects of the anesthesia had worn off. In thirty-four cases there was no vomiting.

RHUS GLABRA IN ENURESIS.

CASSIDY writes in the *Canadian Journal of Medicine and Surgery* for February, 1901, that the internal use of rhus glabra will prevent incontinence of urine. Butler, he tells us, says of this drug that "a dose of 10–30 drops of the fluid extract, taken two or three times daily, has produced complete temporary suspension of nocturnal enuresis of children as well as senile enuresis." The action of rhus glabra resembles that of tannic acid. Krameria, another vegetable astringent, has also been used in incontinence of urine. The astringent action of rhus is probably exercised on the bladder, while the drug which is present in the urine comes in contact with that viscus. When the contact is repeated every day for a considerable time, important changes may be produced in

the mucous membrane of the bladder, and the habit of enuresis broken up. Whether this contention be true or not, it is a matter of observation that a brief employment of the drug, which cannot cause an important change in the vesical mucosa, though efficient for a time, is followed by a relapse. The following cases, which occurred in Dr. Cassidy's practice last year, he thinks emphasizes his view that long continued use of rhus glabra is the important element in the enduring cure of enuresis.

From February 23 to June 24, 1900, three lads, of ages ranging from twelve to fourteen years, were treated by him for enuresis. The details of the treatment were carried out by the infirmarian of the institution in which they boarded. Each of the lads had, at different times, received medical treatment from other physicians prior to coming under Dr. Cassidy's care. The lads were not sickly looking, and took active exercise. Two of them were undersized for their age and were of the nervous temperament; the third, who was well grown for his age, was of the lymphatic temperament. Prior to their being placed under Dr. Cassidy's care, the only treatment pursued at the institution had consisted in restricting the amount of fluid taken at night, and in making the lads arise from bed every night about 11 P.M. in order to urinate. These precautions, however, had proved unavailing.

The prescriptions used were as follows:

℞ Ferri citratis, gr. 160;
Syrupi calcii lactophosphatis,
Syrupi cascaræ aromatici, āā f ʒ ij.

M. Sig.: A teaspoonful after dinner (noon).

℞ Extract. rhois glabræ fluidi, f ʒ vj;
Syrupi, q. s. ad ʒ ij.

M. Sig.: A teaspoonful at bedtime.

This treatment was continued regularly from day to day and without intermission during the months of March, April, May, and June, 1900, the lads being in good health and free from their complaint. During the months of July and August the treatment was discontinued, and has not been resumed since. In December, 1900, and in January, 1901, two of the lads were treated for influenza, one of them having bronchopneumonia; but in neither case did enuresis reappear. The third lad was not seen, as he did not return to the institution.

The conclusion is obvious, therefore, that in two of these cases, and probably in all three, rhus glabra produced more than a temporary effect.

The explanation is that this remedy was given regularly for four months, and the cure resulted largely from the continued action of the vegetable astringent on the vesical mucosa, and particularly on the fibers of the sphincter vesicæ. The use of iron as an adjuvant to rhus is important; but, the mineral being incompatible with a vegetable astringent, it was given in a separate prescription. Though the blood-count was not made, the appearance of the labial and ocular mucosæ in these cases indicated that an iron tonic would be useful.

TAKA-DIASTASE.

Dr. Arthur Watson (Bellwood, Llanymynech) writes to the *British Medical Journal* of February 2, 1901: "I desire to bring to the notice of medical men who have not tried it the great usefulness of taka-diastase in many cases of dyspepsia which do not yield to exhibition of pepsin, mineral acids, alkalies, etc. Probably the majority of dyspeptics can fairly digest proteids or albumins, but not starchy foods which bulk so largely in the diet of most, and especially of abstainers from animal food, who I think increase in numbers. The individual may eat too quickly, or his saliva may, as in fevers, be scanty or lack potency; so the buccal digestion being incomplete, the stomach passes the unchanged starchy food into the bowel, where the pancreas may fail in effective office, in which case severe lancinating pain in the colon may result. Taka-diastase appears not only greatly preventive of such indigestion, but by digesting the vegetable food, liberates the proteids for their better digestion by gastric acid. Recently I have had a dyspeptic vegetarian patient; but by taking with each meal one of Parke, Davis & Co.'s 2½-grain tablets for two or three weeks he can now take food in comfort, and has better general health. This is but one instance of my success with the ferment. If taken half an hour after the meal it acts apparently equally well, and in an acid medium."

WHAT IS "COGNAC BRANDY?"

Editorially the London *Lancet* answers this question as follows:

"It is usually as a matter of chance that trade tricks and facts about adulteration

come to the knowledge of the general public. The spread of knowledge as to the various substances from which beer is usually brewed forms a case in point. Some interesting information has lately been given at Dublin concerning the usual composition of brandy. A Kingstown grocer has just obtained damages from a firm of London merchants for supplying him with cognac brandy which was not of the quality that he ordered. The plaintiff stated that the spirit which had been supplied to him was unsalable, and that one customer had returned a bottle with the complaint that he had been inadvertently supplied with benzoline. This was doubtless a pleasantry on his part, for Professor Tichborne gave evidence to the effect that the liquor was 'patent stilled spirit.' We must in fairness state briefly the defense which was set up. It appears to have been in part technical—that there was no contract, that the defendants had received no money, that no warranty was given, and that the brandy mentioned in the statement of claim was not that supplied by the defendants to the plaintiff. This most instructive part of the defense was contained in the evidence given by one of the defendants. He said that the liquor supplied was foreign brandy and was distilled in part from grape juice. In the trade it was called 'cognac,' but cognac made from Cognac grapes exclusively 'did not exist on the market,' and the cost price of it would be about 7s. per bottle. The jury found that the defendants had contracted to supply 'cognac brandy, which is a blend containing a proportion of grape spirit,' and that the liquor which they supplied was neither brandy nor what is known in the trade as 'cognac brandy.'

"The evidence given in this case is not very reassuring. According to the definition accepted or given by the jury cognac brandy is said to be a blend which must contain at least some grape spirit, but it does not appear to matter how small the proportion of this may be. There is no doubt that it has of late years been increasingly difficult to obtain good brandy, and for the reason, amongst others, that whiskey has in this country largely taken its place. If the late Mr. Pickwick were to visit his old haunts he would perhaps be more surprised at this than at the other changes which would force themselves on his notice. It ought, however, to be thoroughly understood that whiskey cannot properly be substituted for brandy in all cases. Fine brandy contains, in addition to alcohol, a number of highly volatile ethers which have a strongly stimulating effect, and which are eliminated without any known ill-effects, and without causing the slightest derangement to the digestive system. It is much to be regretted that the fine champagne which was sent from France till about the year 1870 is now practically unobtainable. These liquors were not only pleasant to the cultivated palate, but, given judiciously, were most useful in many cases of sickness. Unfortunately nothing has yet taken their place. Readers who habitually follow the results in the *Lancet* Analytical Laboratory will have noticed that our consulting chemist has often found reason to praise samples of brandy which have come from some of the English colonies. Analysis has more than once pointed to the inference that the spirit has been derived from grapes, but in practically all cases there has been a deficiency in the œnanthic ethers which are the life and soul of the ideal brandy."

FATTY DEGENERATION OF THE HEART.

The *Medical News* of February 2, 1901, contains an article by SATTERTHWAITE, in which he discusses the therapy of this serious state. Of the measures advised he speaks as follows:

If, for example, a patient is suffering from a violent attack of palpitation, rest in bed in a quiet room and a restricted diet should be ordered. Milk is excellent if it agrees with the patient. Some simple sedative like the bromide of camphor may be given, though it has often been noticed that such patients recover from even severe attacks without any medication addressed to the heart. However, aconite in one-minim doses is sometimes useful, or a belladonna plaster may be applied beneath the breast. But if the palpitation is neurotic, such heart tonics as sparteine sulphate, strophanthus, convallaria, and digitalis should not be given. Valerian is better, and minute doses of calomel, with or without an enema, are usually soothing. In ordinary cases of fatty degeneration, the patient, if he is anemic, should be put on iron; if tuberculous, on malt preparations and creosote or cod-liver oil; if atheromatous, on the iodides; if rheumatic, on antilithemic diet and remedies in conjunction with the hot-air treatment.

In the third stage, when all hope of cure by any of the above measures is at an end, and it is merely a question of prolonging life and alleviating suffering, digitalis is appro

priate if there is an effusion referable to the failing action of the heart through inaction of the kidneys. In digitalin, in $\frac{1}{100}$-grain doses every few hours, the writer has found the most satisfactory method of giving this drug. But it should not be continued more than a week or so at a time, and strychnine should follow it to maintain its effects. Other remedies that are useful in this stage are nitroglycerin, caffeine, strophanthus, and sparteine. Attacks of difficult breathing, if not severe, are relieved by oxygen gas, while sudden attacks of true or false angina are best treated by the nitrites. A solution is used in these cases containing nitroglycerin, $\frac{1}{100}$ grain; amyl nitrite, ¼ grain; menthol, $\frac{1}{50}$ grain; and oleoresin of capsicum, $\frac{1}{100}$ grain; all suspended in 10 minims of castor oil. A single capsule containing these ingredients should be on hand when these attacks are expected, and a single dose usually suffices. But even in the third stage it must be remembered that the degenerate heart has a most remarkable capacity for recovery, even without the so-called heart stimulants. If given their action should be constantly watched, and in any case they should be used for only the briefest possible period. These remarks are especially true of digitalis, strophanthus, sparteine, and strychnine.

ON THE STERILIZATION OF MILK: ITS ADVANTAGES AND LIMITATIONS.

To the *New York Medical Journal* of February 2, 1901, BLACKADER contributes a paper which he concludes as follows:

To sum up this presentation of the subject, it may be said that milk sterilized by heat is altered to an extent varying according to the elevation of the temperature used in the sterilization and the duration of its exposure, in the following respects:

1. Its proteids are modified and rendered apparently less digestible; but our knowledge on this subject is still indefinite and dependent chiefly on clinical experience; nothing has yet been proved by laboratory experiment.

2. The combination of its saline ingredients with the proteids, a combination which we must admit is not absolutely proved, but which appears to be extremely probable, is more or less broken, and the salts assume a condition in which they are less readily absorbed.

3. Natural ferments, whose presence in milk may with much probability be inferred, and which may materially assist its digestion in the infant's stomach, are destroyed.

4. An alteration takes place in the emulsion, normal to milk, which may also have a distinct effect in lessening the digestibility of cow's milk by the infant.

Again, it is extremely important that milk after sterilization should be kept at a continuously low temperature, and it is to be remembered that the employment of sterilized milk which has been kept for many days is not free from danger.

It appears, therefore, extremely desirable in infant feeding to use fresh milk drawn with such careful precautions as to be practically free from extraneous bacteria, and in which the lactic-acid-producing bacteria are present in such small numbers as to induce no alteration of moment.

Such milk is better not sterilized at all. But it is seldom our good fortune to be able to obtain such with the regularity necessary for the daily preparation of an infant's food. And when our supply cannot be depended upon, it appears the lesser of two evils to have the milk sterilized, but sterilized at the lowest efficient temperature, namely, 60° C., maintained for fifteen minutes.

Letters received by the author from many friends in the American Pediatric Society advise him that such is almost invariably the practice of the large majority of them.

OBSERVATIONS ON FIFTEEN CASES OF HEMOGLOBINURIC FEVER.

HEARSEY records his views as to the proper treatment of this affection in the *British Medical Journal* of January 26, 1901. He believes that it must be mainly symptomatic; but it is always advisable to administer a smart purge, such as calomel with compound jalap powder, at the onset of the attack. Vomiting, being the most urgent symptom, early calls for relief. Various remedies have hitherto been tried, but without any apparent result. A mustard plaster to the epigastrium affords relief, and the sucking of ice would probably be of great value, but it cannot be obtained in that country. If the vomiting is severe, it is advisable to give the stomach complete rest for a few hours, and peptonized nutrient enemata may then be used should the condition of the patient render this necessary.

Latterly Dr. Hearsey has successfully treated seven consecutive cases of hemoglobinuric fever by administering every two

hours during the first day a mixture consisting of sodii bicarb. gr. x, and the liq. hydrarg. perchlor. ℥ xxx. During the four following days the mixture is given every three hours. This, it is believed, will effectually control vomiting and increase the flow of urine. The alkali neutralizes the acidity of the stomach and urine, and stimulates the renal epithelium; the mercury probably acting as a gastrointestinal disinfectant in the same manner as Sternberg's mixture does in yellow fever. This has, indeed, become the routine treatment of hemoglobinuric fever in British South Africa, and the results in other hands also have been so eminently satisfactory that it is hoped the mixture may be given a more extended trial.

No other drugs are given, and quinine is entirely withheld throughout the illness. Should the temperature cause any uneasiness, sponging affords great relief, and phenacetine in doses of five to ten grains may be given every four hours with the greatest safety.

The diet consists mainly of milk, to which a little meat juice may be added, or essence of chicken. A tablespoonful of brandy is added to the milk if the condition of the heart renders this necessary. The nourishment is given frequently and in small quantity.

During convalescence, and in view of the anemia, it is always advisable to administer a ferruginous tonic, and for this purpose ferri et ammonii citras and ferri et quininæ citras are found most suitable.

THE TREATMENT OF THE LATER PHASES OF HEART DISEASE.

Dr. HEFFRON, of Syracuse, N. Y., expresses the following views in the *Boston Medical and Surgical Journal* of January 31, 1901, upon this subject:

When compensation has failed, the first indication is to relieve the heart of all extra work. Rest in the recumbent position accomplishes this most perfectly, as far as the postural treatment is concerned. It relieves the heart physiologically of from ten to twenty contractions per minute as compared with the usual conditions which prevail when one is simply "confined to his room" in the usual acceptation of that term. When dyspnea is marked this position is difficult of attainment at first, but can soon be accomplished under favorable conditions. The rest should be complete, and should include forbidding to sit up even during feeding and the necessary care of the secretions. Of nearly as great importance is the exclusion of visitors whose presence excites emotion of any kind.

Secondly, the volume of blood to be propelled by the heart should be diminished as much as possible. To accomplish this the direct diminution of the volume of the blood by bloodletting is seldom indicated, though in extreme cyanosis not the expression of simple venous congestion most brilliant results have been reported from bloodletting and even paracentesis cordis. The use of such hydragogue cathartics as least disturb the general condition and most aid in the elimination of waste matters with the watery evacuations is imperative. For this purpose there are many candidates for favor, but the writer's experience leads him to place the reliable remedies capable of accomplishing this purpose in the following order: elaterium, calomel, salines. At the same time the diminution of ingested fluids must be insisted upon. It is desirable for the nurse to keep a record of the relation of ingested fluids and excreta with as much accuracy as conditions permit. With the aid of such a record one can easily avoid errors on either side.

Thirdly, the distressing nervousness of the patient, which increases the irritability of a heart already overburdened, must be controlled. For this purpose ice-bags over the heart give a certain amount of relief, but it is almost always necessary to employ remedies directly acting upon nerve centers. It is here that the alkaloids of opium can be administered without hesitation. Codeine should first be tried in doses of one-half grain hypodermically. It will usually suffice, and when it can be used, it relieves the patient of the narcotic effects of morphine. It does not, however, differ from morphine in its effects upon the secretions, and will as surely produce constipation as will morphine. If it fail to induce the desirable quieting effect and compel sleep, morphine must be used. Both alkaloids stimulate rather than depress the myocardium if used in therapeutic doses. Heroin is not a new alkaloid of opium, but a salt of morphine, and is in no way superior to the more familiar salts and lacks none of their evil effects. Already several cases of chronic morphine poisoning have come under the author's observation from the use of heroin, and one of them was a physician. If the nervousness is not so extreme, though positive, he has obtained most

gratifying results from the use of the extract of cannabis indica. The effect of this drug is frequently most happy, and it is free from the objectionable action on the various secretory organs. This preparation is so uniform and so efficacious that as a rule it is used at first, and if it fails add to it a small quantity of codeine or morphine.

Closely related to this relief of all unnecessary work of the heart is the management of the diet. It is well known that a full meal causes increased action of the heart, first physiologically, then mechanically, by the irritation of a distended stomach crowding against a crippled heart. If digestion is feeble and fermentation of the food in the stomach takes place, the crowding against the heart of a stomach distended with gas and imperfectly digested food may so disturb the heart's innervation as to produce even fatal results. The invariable rule must therefore be for such a patient to take small amounts of easily digested food, at such intervals as allow of the perfect elaboration of the ingesta. In the diet of these patients there are certain necessary exclusions. Substances which are bulky and of small nutritive value, and which are usually of slow digestion, as are most of the vegetables, foods highly seasoned with condiments which naturally stimulate the heart, preparations which represent chiefly the waste matter of other animals, like beef tea and all soups, which chemically have an analysis closely resembling that of urine, all alcoholic beverages, and all acid fruits and vegetables, because so many chronic heart cases have a rheumatic background which demands alkalies, must be rigidly excluded. All these, without exception, impose an extra burden upon an already overburdened organ, and are non-essentials to nutrition, however grateful they may be to an overcultivated palate.

The selection of the ideal dietary in each individual case must be the resultant of an intimate acquaintance with the patient's digestive ability and tastes, and a thorough knowledge of the nutritive value of foodstuffs. Fresh eggs, raw or slightly cooked, custards, junket, scraped or chopped lean beef, mutton or chicken, the expressed juice of broiled beef or mutton, stale bread toasted, possibly a baked potato, with light milk puddings, make up a suitable dietary for average cases, while in those whose digestive ability is greatly impaired the various predigested foods, including peptonized milk-gruels, the peptonoids, Just's food, etc., will serve to bridge over the interval during which the general condition is undergoing improvement, and the heart is recuperating its energies. The method of administering predigested food is of considerable importance. Rather than give a comparatively large quantity at stated intervals, it is productive of far better results to give small portions at very frequent intervals, letting the patient sip it by mouthfuls every fifteen minutes.

UROTROPIN AS A URINARY ANTISEPTIC.

The London *Lancet* of January 19, 1901, contains an article by CAMMIDGE, in which he details the results of a series of experiments with this drug. The results of his chemical experiments are summarized as follows: (1) Urotropin may alone, by prolonged heating, be made to yield formaldehyde, but this decomposition does not take place at body temperature. (2) An alkaline solution of urotropin may be similarly decomposed, but the body temperature is not sufficient to cause the change. (3) Dilute acids quickly decompose urotropin on boiling with the evolution of free formaldehyde, and this change occurs to a less degree at 37° C. (4) Acid salts—*e.g.*, of the urine—liberate formaldehyde from urotropin on boiling, but not at 37° C. The acid urine of a person taking thirty grains of urotropin a day does not contain free formaldehyde.

Although the exact chemical nature of the antiseptic body occurring in the urine has not been definitely settled, it seems clear, both from the bacteriological and chemical evidence, that it is not free formaldehyde. The readiness with which urotropin is decomposed by acids, and to a less extent by acid salts, together with the more marked inhibitory power over the growth of microorganism shown by the acid urine over simple urotropin solution or an alkaline urine, would suggest that it is not the urotropin itself which is the most important factor in producing this kolyseptic action. It seems probable that acid urines produce in the kidney a partial decomposition of the urotropin by which some body is liberated, or a fresh compound formed which has very marked inhibitory powers over the growth of bacteria. If this hypothesis is correct an important point in securing the full effect of urotropin in bacterial infections of the urine would be that the urine should be acid in reaction as it leaves the kidney. That this is so is borne

out by clinical experience. One condition in which it is preeminently useful is typhoid cystitis. Here the urine is generally acid, and the administration of urotropin quickly causes the bacilli to disappear. It has also been found useful in cystitis accompanying enlarged prostate and stricture of the urethra. Here, too, the urine is usually acid as it leaves the kidney, and only becomes alkaline from the ammoniacal decomposition which takes place in the bladder. In suppurative pyelitis and in cystitis caused by calculus in the kidney or bladder a similar condition of the urine obtains, and good effects follow treatment by urotropin. The administration of urotropin as a means of insuring antiseptic urine and an aseptic condition of the genito-urinary tract in operations on those regions has been highly recommended by Casper. Other conditions, such as bacteriuria and the nocturnal enuresis of children, the latter being said to be frequently caused by infection with the bacillus coli communis, would probably be found to be benefited by treatment with urotropin, since the urine is acid in reaction. Experience has shown that gonorrhea and tuberculous cystitis are not appreciably benefited, but the condition of the infection in these two diseases is different to those previously mentioned—the microorganisms are not in the urine but lie chiefly in the tissues.

As a urinary antiseptic urotropin appears to be much superior to those usually employed (*e. g.*, salol, ammonium benzoate, boric acid, guaiacol, naphthalin, and resorcin), especially when the acidity of the urine is insured by suitable means. It is not, however, only as a curative agent in the ordinary forms of urinary infection that the advantages of the drug are so apparent, but in typhoid fever it may be employed from the third or fourth week onward to the advantage of both the patient and the community at large. Recent researches have shown that typhoid bacilli occur much more frequently in the urine than has been generally supposed, and that they may persist for very long periods after convalescence (five years). By the systematic use of urotropin in all cases the very real danger from this source which is so frequently overlooked may be entirely avoided.

GELATINIZED SERUM IN GYNECOLOGY.

LAFOND-GRELLETY (quoted in *Medical Record*, March 16, 1901) believes that gelatinized serum is the most convenient and the surest hemostatic in the hemorrhages of pregnancy; that in endometritis and in metritis it always arrests hemorrhage, diminishing leucorrhea without curing it, and rendering the uterine mucosa less liable to hemorrhage during curettage. He also believes that in curettage, with or without amputation of the cervix, it permits of hemostasis, without hindrance during the operation. It economizes for the patient a certain amount of chloroform. It renders possible, together with the aid of appropriate solutions, antisepsis of the field of operation. It has the advantage over hemostatic forceps in that it does not constrict a region that is not easily accessible and which is limited. He believes also that in inoperable cancers of the uterus it arrests and diminishes the frequency of hemorrhage, and it relieves, for some time at least, the suffering attendant upon this affliction.

PROGNOSIS OF A CARCINOMA OF THE PYLORUS AFTER GASTRO-ENTEROSTOMY.

STRAUSS (*Berliner Klinische Wochenschrift*, March 11, 1901) reports the case of a patient thirty-five years old who began to suffer in 1895 from gastric pain and vomiting, with distention of the belly and obstinate constipation. There was also a steady loss of weight. In March, 1897, the patient was opened, and a tumor the size of a small apple was found about the pylorus, and totally adherent to the neighboring parts. Upon the stomach wall, moreover, were found multiple carcinomatous nodules. Anterior gastroenterostomy was performed, and the abdominal wound was closed. After one and three-quarter years from the time of the operation, the patient remained entirely well and free from pain. There then followed a period of one and one-half years during which he suffered from occasional attacks of vomiting, though he was able to pursue his calling. There then developed left-side pleural effusion and heart failure, from which he died.

This case is especially interesting from the fact that the patient lived for three years and four months after the performance of a gastroenterostomy planned for the relief of the obstruction due to cancer already so well developed that its total removal was a matter of impossibility. It is probable that this cancer had existed at least two years before operation.

An investigation as to the average length of life following gastroenterostomy shows that it is not greater than three-quarters of a year. Steudel, however, but lately recorded cases of gastric cancer treated by gastroenterostomy in the Czerny clinic which lived two and a quarter, four, five, and five and a half years. He concludes that it can scarcely be doubted that certain cases of carcinoma act very much as does peritoneal tuberculosis, and that a laparotomy not only stops their progression but even seems to bring about retrograde changes. These cases of slight progression usually show a very large amount of connective tissue.

Strauss points out, and apparently demonstrates from a statistical study, the fact that gastric carcinoma occurs at a younger age than does carcinoma in other regions of the body, if the breast and genitalia be excepted. In a small percentage of cases it occurs under twenty years; in about six per cent, under thirty years; and in about sixteen per cent, under forty years.

EXPERIMENTAL AND CLINICAL RESEARCH ON THE APPLICATION OF PEROXIDE OF HYDROGEN IN SURGERY.

HONSELL (*Beiträge zur Klinischen Chirurgie*, Band 27, Heft 1) has made a praiseworthy effort to have placed on a scientific basis the status of H_2O_2 in surgery. As to its physiological and pharmaceutical properties, the author states that a three-per-cent (weight) H_2O_2 causes marked changes in both fresh and defibrinated blood, provided it is mixed in sufficient quantities with either. It kills infusoria and probably other isolated cellular elements. Living tissues suffer none by virtue of any chemical influence of the peroxide of hydrogen. Any damage may be traceable merely to mechanical action of liberated oxygen gas. The injection of H_2O_2 into the circulation, the peritoneum, or connective tissue kills the animals if sufficient peroxide be introduced. Death is caused by gas embolism of the lungs, nor could it be proven that death followed from any other cause. The application of H_2O_2 (three-per-cent) on free surfaces or open cavities causes neither local nor constitutional disturbances, no matter what quantities be used. More to the point in its bearing on the modern antibacterial treatment of wounds are the following conclusions of bacteriological experiments: A three-per-cent H_2O_2 is the equivalent of a 1:1000 sublimate solution acting on bacteria suspended in aqueous solutions, but H_2O_2 is superior to it in media rich in albuminous fluid and poor in cells; where the latter predominate, it is again on a par with solution of sublimate. The bacterial properties of 1.5-per-cent H_2O_2 is inferior to aqueous solutions, but in media rich in albumen, wanting in cells, it is superior to it. A two-per-cent solution of acetate of alumina can in no way compete with H_2O_2. If the bacteria are in organic fluids, the antiseptic power of H_2O_2 diminishes in direct proportion to the extent of the catalysis of H_2O_2 effected by the respective solutions. In so far as we can draw conclusions from test-tube reactions, the powerful antiseptic action of H_2O_2 can be developed in urine and drinking-water, provided decided quantities of albumen are not present; on the other hand, in conditions met with in wounds whose catalytic tendencies will be marked, no more effect will attend its application than the use of $HgCl_2$ or acetate of alumina under like conditions.

At the clinic of Tübingen one-per-cent solutions were used on granulating and suppurating surfaces. The experience of the author concurs in the main with the practical results claimed by L. Championnière for H_2O_2, whence he concludes that H_2O_2 exerts a beneficial influence on the course of suppurating wounds, particularly putrid and gangrenous processes. On fresh operating wounds it causes neither local nor benign remote consequences. Foremost as the cause of its influence on septic processes is its mechanical action of foaming the secretions. The chemical action, however, of H_2O_2 by virtue of its nascent oxygen was not proved. Perhaps a direct action of H_2O_2 on the tissues may exist. The foaming effects a cleansing of the wound surface without any injurious action, wherefore its superiority over acetate of alumina or sublimate solutions. While its hemostatic properties may make it available to the otorhinologist and gynecologist, in the strictly surgical field a chemical hemostatic is no longer sought. As a deodorizer it is instantaneous, powerful, and has no equal.—*Annals of Surgery*, January, 1901.

RESULT OF MAJOR AMPUTATIONS TREATED ANTISEPTICALLY.

ANGUS (*Lancet*, March 2, 1901) reports the result of major amputations treated antiseptically in the Royal Infirmary, Newcastle-upon-Tyne.

During 1899, sixty-seven major amputations—three of which were double amputations—were performed on sixty-four patients, six of whom died and fifty-eight recovered, a mortality of 9.3 per cent. Of the thirty-two cases of amputation for injury, four patients died, a mortality of 12.5 per cent. There were twenty-five cases of primary amputation and four deaths, a mortality of 16 per cent. Thirty-five of the amputations were for disease, and in two cases the patients died, a mortality of 5.7 per cent. In one of the double amputations—the amputations were primary in the legs—unfortunately both stumps had to be reamputated owing to sloughing of the flaps. The patient made a good recovery.

For a period of twenty-one years and nine months up to December 1, 1899, 1233 operations were performed; 1119 recovered and 114 died, a mortality of 9.2 per cent. There were 508 cases of amputation for injury, and 71 of these patients died, a mortality of 13.9 per cent; 725 were for disease, 43 died, a mortality of 5.9 per cent.

SURGERY OF THE STOMACH.

HABERLIN (*Münchener Medicinische Wochenschrift*, No. 9, Feb. 26, 1901) since 1896 has operated upon eight patients suffering from chronic affections of the stomach. In three cases there was cancer, in three others ulcer, in one there were adhesions, and in one no cause could be found for the suffering.

The first case, a man sixty-five years old, was one of cancer. The mother of this patient had died of cancer of the stomach. The symptoms had been suggestive for two years. A tumor could be felt on palpation. The cancer, which involved nearly the whole of the pylorus with the exception of a strip perhaps half an inch wide, was resected, and the stomach and the pylorus were then brought together, the healthy strip not having been cut through. The operation lasted three and a quarter hours. On the eighth day there was a rise of temperature, the wound having been drained. The fistula closed in six months. Four years later the patient was operated upon again, with a cure of the resulting hernia. The stomach and omentum were entirely free of recurrence at the time of reporting, which was four and a half years from the period of first operation.

The second patient was fifty-nine years old. The tumor, the size of a mandarin orange, involved the pylorus. This was resected, and the duodenum was united to the stomach by circular suture. Some small glands were removed which were lying on the greater curvature. The operation lasted two and a quarter hours. Microscopic examination showed that the tumor removed was a carcinoma. Convalescence was uninterrupted. Some ten months later there was a return of symptoms with emaciation. A tumor was felt in the neighborhood of the navel. On operation the tumor was found in the neighborhood of the pylorus. In freeing it posteriorly a small piece of the pancreas had to be resected. On removal of the tumor the union of the stomach with the duodenum was extremely difficult because of the thinness of the gut. The operation lasted two and a quarter hours. The patient recovered without complication, and remained well for eight months, but finally died of recurrence.

The third patient, sixty-four years old, had a mother who died of breast cancer. She was suffering from a large malignant infiltration of the pylorus which had grown fast to the liver. Radical operation seemed impossible, but for the relief of the pain and vomiting gastroenterostomy was performed, combined with enteroenterostomy, by means of the Murphy button. The operation lasted two hours. The patient quickly recovered, although there was originally profound shock. There was some amelioration in the symptoms, but the patient died in eight weeks. The author advises early operation in these cases and close attention to the fact that the immediate danger grows less as surgical skill becomes greater. He notes that in the Zurich clinic, Krönlein reported for the summer of 1898 a mortality of only ten per cent of twenty patients, thus contrasting markedly with his previous mortality of seventy-five per cent. Among the nineteen patients who recovered in Krönlein's clinic, two remained well and free of recurrence for four years. Kocher in 1898 reported cases well after five and ten years.

Of the three cases of ulcer of the stomach, one occurred in a woman thirty years old; it was accompanied by marked dilatation of the stomach. On operation an enlarged gland was found in the omentum and was removed, although the thickening of the pylorus did not seem malignant. Pylorectomy was performed, the stomach and duodenum being then brought together by stitches. The convalescence was uneventful, the patient recovering completely.

The second patient, twenty years old, was

operated on because of perforation of the stomach from ulcer. The surgical procedure was adopted two and a quarter hours after the perforation. A median cut was made, under cocaine anesthesia; in the general peritoneal cavity was found a large amount of tea mixed with fibrinous flakes. The perforation was found on the anterior wall of the stomach. The stomach opening was sutured to the parietes. The peritoneum was thoroughly cleansed and drainage was established. Death followed two and a half hours later.

The third patient was also operated on for perforation about thirty hours after the occurrence of the accident. The opening on the anterior surface was closed by suturing, and the peritoneal cavity was thoroughly cleansed. The patient practically died on the table.

As to the surgical treatment of gastric ulcer, the author believes that operation should be practiced whenever the patient's life is threatened indirectly by the malady, as, for instance, by bleeding, by progressive emaciation, by beginning suppurative perigastritis, or by a suspected carcinomatous degeneration. Operation should also be performed when repeated careful medicinal treatment either is non-operative or accomplishes at most a brief improvement, the patient being practically crippled from all active pursuits.

The patient upon whom operation was performed because of adhesions came of a cancerous family. The diagnosis before operation was probably carcinoma. Recovery was prompt and complete.

The last patient had suffered for many years from pain in the stomach, colicky attacks, and vomiting of blood. Exploratory incision failed to find anything; it, however, succeeded in relieving all her symptoms.

WOUNDS OF THE LIVER AND GALL-BLADDER.

WARBASSE (*Brooklyn Medical Journal*, February, 1901) notes that the most common causes of rupture of the liver are compression, with or without fracture of the ribs, blows, and falls from a height. It is especially subject to injuries resulting from pressure applied in an anteroposterior direction.

The wounds are often multiple, sometimes resulting in the complete detachment of masses of liver tissue. The most common seat of laceration is the convexity of the right lobe.

Hemorrhage occurs in all wounds of the liver, and in the vast majority of cases is the chief symptom. A diagnosis can be made only with difficulty in the absence of a wound of the overlying structure. Rupture of the liver is so frequently complicated with other injuries that their symptoms must also be taken into account. The author's experience has been that the most careful palpation and percussion have been of little value as diagnostic aids in determining the presence of blood in the abdomen. The surgeon must depend upon the classic signs of acute anemia and the local evidences of traumatism.

Pain at the site of the injury is commonly present. It may be due to the injury to the chest and abdominal walls, to the intra-abdominal traumatism, or to both.

Warbasse ventures the hypothesis that the original wound may sometimes be increased in size by a clot acting as a wedge and fulcrum, this action being assisted by the respiratory movements of the diaphragm and abdominal muscles, the movement of the patient, and the palpating hand of the surgeon.

Among other symptoms of lesser importance, icterus is sometimes observed. The escape of bile from a wound over the liver, and the later formation of a fistula, discharging bile-stained fluid, is of importance. Pains radiating in the right shoulder, arm, breast, and neck are called attention to by Koenig — also hiccough and a diminution of the respiratory excursion of the diaphragm. In gunshot or stab wounds the bleeding is usually less than in ruptured or lacerated wounds. In gunshot wounds, an escape of bile is observed in forty-one per cent of cases.

In the case of wounds involving the gall-bladder or the great bile-ducts at the base of the liver, bile escapes into the general abdominal cavity. Bile escaping from a non-infected gall-bladder does not excite peritonitis.

Attention is invited to the fact that the secretion of the liver is possessed of peculiar properties, which so far as certain varieties of bacteria are concerned may be designated as antiseptic, while upon the growth of other intestinal microorganisms it exerts but a mildly inhibitory action, and this includes most of the inflammation-producing organisms residing in the small intestine. Though

the gall-bladder is frequently infected with the common colon bacillus, the inflammation which it produces is not so violent as that which the same organism produces in the vermiform appendix, which has much in common with the gall-bladder.

The infection of the peritoneum in cases of wounds of the gall-bladder or gall-ducts is slow, but inevitable. The following will illustrate the train of pathological events following rupture of the gall-bladder:

After a traumatism to the right hypochondriac region the patient may be put to bed with a subnormal temperature, which gradually rises to normal. The stools show the absence of bile; and bile-salts and bile-coloring matter may be present in the urine. Vague and diffuse abdominal pains may be present. Constipation develops along with tympanites, thus rendering more difficult the discovery of fluid in the abdomen. After a week or ten or fifteen days a gradual rise of temperature begins, with an increase of general abdominal pain. The unmistakable signs of peritonitis develop, and without surgical interference the patient dies. The autopsy shows the abdomen containing a large amount of bile, distributed pretty generally throughout, mixed here and there with flocculi of fibrin and pus. There are a few adhesions. A rupture of the gall-bladder is found.

In one case reported, sixteen days after injury, the chief discomfort was referred to the left lumbar region, where an abdominal section was made and a large amount of bile removed. Another opening was then made in the right side and more bile discovered; three quarts of fluid in all being removed. The source of the trouble was found to be a torn gall-bladder, the rent in which was sutured, abundant drainage supplied, and the patient conducted to recovery.

When complicated by injuries of neighboring structures the diagnosis is even more difficult than in uncomplicated rupture of the liver or its appendages. In ten cases the following were found: fracture of lower ribs of right side, laceration of the lower lobe of the right lung, of the spleen, and of both kidneys; rupture of the colon, and of the duodenum; fracture of the pelvis, and of the dorsal vertebræ; rupture of the bladder, fracture of the sternum; and in some cases fracture of the bones of the extremities was observed.

When the evidences of a continued hemorrhage are present, the location of the chief tenderness is a most valuable guide in determining the source of the bleeding. In the absence of local signs, however, a fatal hemorrhage may be taking place.

The gravity of uninfected wounds of the liver depends upon the bleeding, injury to the gall-bladder or large ducts, and the destruction or detachment of large segments of the organ. A wound of the liver which has not terminated fatally from hemorrhage may go on to suppuration from infection from associated injury to other viscera or the abdominal wall. Liver abscess or localized peritonitis may thus develop.

The statistics of 543 cases of wounds of the liver collected by Edler show a mortality of eighty-six per cent for rupture of the liver. These statistics, however, do not wholly represent recent surgery. For incised wounds there is a mortality of sixty-five per cent, and for gunshot wounds an average mortality of sixty-seven per cent.

In forty-six cases reported recently by Terrier and Anvry, there were twenty cases of incised wounds, of which fifteen recovered; fourteen of gunshot wounds, of which ten recovered; and twelve of contused ruptures of the liver, of which seven recovered. Thus of the forty-six cases operated upon, thirty-two recovered and fourteen died.

It is in cases of wounds of the liver not associated with wounds of the parietes that the surgeon is called upon to exercise a high degree of diagnostic acumen and surgical judgment in determining the therapeutic attack. The original symptoms of hemorrhage or of peritonitis may be slight, but the persistence of symptoms pointing to these conditions calls for prompt exploratory abdominal section. Blood and bile should be removed from the abdomen. Bleeding of the liver may be easily checked by light pressure with a gauze tampon. Rents in the liver may be sutured with a large round needle armed with heavy thread to prevent cutting through its friable substance.

Non-infected wounds of the gall-bladder should be sutured, and those of the gall-ducts also if accessible; a narrow strip of drain being introduced if the danger of infection is considerable. If the wound of the gall-duct is such that it cannot be reached, or if the condition of the patient will not permit suturing, the abdomen must be cleansed and drainage must be provided for the escape of the overflowing bile. The drain may soon be dispensed with, and the gradual contraction of the drain-channel may divert the bile into its natural course.

If attempts to close the fistula fail, and bile is lost, the patient must be supplied with bile. The administration of inspissated bile will correct in some measure deficient bile supply.

The author suggests in some cases of this kind an anastomosis between the fistulous tract and the upper part of the small intestine, thus permitting the escaping bile to empty into the intestinal canal instead of through the surface of the body. Next to this he suggests the making of a high enterostomy, and collecting the escaping bile or conducting it immediately into the intestinal fistula.

In cases of intra-abdominal hemorrhage, the author has seen lives saved by the timely introduction into the veins of a compensatory amount of normal saline fluid.

THE FREEZING-POINT OF THE BLOOD AS AN INDEX TO KIDNEY FUNCTION.

KUMMEL (*Verhandlungen der Deutschen Gesellschaft für Chirurgie*, XXIX Congress) believes that a great degree of certainty as to kidney sufficiency can be obtained by determining the molecular concentration of urine.

The molecular concentration of any fluid is expressed in its freezing-point, which is lowered proportionately to the degree of concentration; furthermore, osmosis has an important bearing on this phenomenon, since osmotic pressure between any two fluids separated by a membrane is directly proportional to the quantity of molecules in suspension. Blood and urine (in the sense of being solutions) are subject to the laws of osmosis. The blood under normal physiological conditions has a fixed freezing-point—0.56° C. If the normal metabolism is maintained by the urinary excretion of the kidneys, the normal freezing-point of the blood will serve as an index of renal sufficiency. As soon as the kidney acts insufficiently, the metabolic products are stored in the blood, its molecular concentration increased, and the freezing-point lowered. Koranyi, the originator of this method, found a lowering of freezing-point of blood in nephritis, tumor, hydro- and pyonephrosis, and also in animals upon the ligation of both ureters. Of practical significance is the observation that no change of freezing-point of blood follows when one kidney remains, an observation which harmonizes with clinical experience of the rapidity with which the remaining kidney compensates for the loss of its associate. It would seem natural to rely at once on the freezing-point of urine, but the physiological limits of the latter are too wide. Normally, a fluctuation of —1° to 2° C. obtains. In general, it may be said if the freezing-point of urine is lowered by —1° C., the kidneys are diseased. If the urine from one kidney be drawn by catheter, its freezing-point would be of greater import. For practical purposes it may therefore be concluded that a diminution of the freezing-point of blood to —58° C., —61° signifies insufficiency of the kidneys, and operative interference should not follow until freezing-point is about —56° C. A freezing-point of urine less than —9° C. is an index of insufficiency of the kidney, but of most significance would be the freezing-point of the segregated urines respectively.—*Annals of Surgery*, January, 1901.

FATTY EMBOLUS.

FORGUE (*Journal des Praticiens*, No. 51, 1900) defines fatty embolus as the penetration of drops of fat into the venous blood current. The drops customarily stop in the pulmonary capillaries, but may traverse the pulmonary circulation and reach the arterial system. This condition is most likely to develop subsequent to bone lesions, especially such as are accompanied by a crushing of the medulla.

It has been shown experimentally that milk will not produce embolism, because the globules of fat are so small that they do not obstruct the capillaries.

When the fatty emboli reach the lungs they cause acute edema, and there result from the obstruction of the final ramifications of the pulmonary artery hemorrhagic infarcts. When, because of the comparatively large size of the pulmonary capillaries, and the tendency of the fat to form cylinders which do not adhere to the vessel walls, the molecules enter the aortic circulation, there are three organs in which they are prone to lodge, namely, the kidney, the liver, and the spleen.

The kidney localization is often characterized by the presence of globules of fat in the urine. The onset of the affection is characterized some days after a fracture in an operation upon the bones by dyspnea. This does not necessarily signalize the beginning of the embolus, but rather the congestive or

ischemic changes resulting from circulatory obstruction.

Scriba has seen experimentally fatty globules appear in the pulmonary circulation forty-two seconds after infection. The dyspnea, when it does appear, comes on suddenly and is accompanied by cough and expectoration which is sometimes blood-stained, indicating infarct, sometimes frothy and very abundant. Percussion shows dulness more or less extensive; auscultation, sonorous râles.

Because of pulmonary obstruction, the heart action becomes labored, the contractions are more rapid and feeble, and the right side of the heart is dilated.

In the more serious cases there are distinct cerebral disturbances, such as vertigo, apathy, or even loss of consciousness.

The pathognomonic symptom of fatty embolus is the presence of fat in the urine. On the surface of fatty urine there is formed a whitish, cloudy deposit, which, if placed under the microscope, shows that it is made up of a quantity of round globules colored deep brown by the addition of a drop of one-per-cent solution of osmic acid.

The elimination of the fatty molecules by the kidneys is sometimes accomplished in a periodic manner—the first period, from the second to the fourth day; the second period, from the tenth to the fourteenth day; the following eliminations at intervals of from six to ten days.

Fatty embolus is more frequent than is commonly believed. All cases of sudden dyspnea not due to bronchopulmonary inflammation should suggest an examination of the urine for fat.

Most cases recover.

Scriba has demonstrated experimentally that it would require 210 grammes of fatty matter to kill a man. In case of death, the fatal issue is mostly attributable to feebleness of the myocardium.

LARYNGECTOMY UNDER EUCAINE ANESTHESIA, WITH REMARKS ON THE TECHNIQUE OF THE OPERATION.

DAVIS (*Annals of Surgery*, January, 1901) operated on a stout, well built man of forty-six years of age for the removal of a carcinoma of the larynx. The operation was commenced by injecting with a sterilized syringe, previously boiled, one-per-cent eucaine B solution, beginning in the skin just above the hyoid bone and continuing down to the top of the sternum. A straight incision was made through this anesthetized area. Eucaine was injected as the operation proceeded, and though it had been the intention to administer chloroform as soon as the trachea had been opened, the operation had progressed so satisfactorily under local anesthesia that this was continued. On completion of the operation the patient was comfortable, breathing quietly, with a pulse of 104, and not the slightest evidence of shock. In all, seventy-five minims of a one-per-cent solution of eucaine B was used. He died on the fifth day. A post-mortem examination showed an intense congestion of the tracheal and bronchial mucous membrane, as well as of the kidneys, liver, and spleen. The wound from the trachea up was united by primary union. Streptococcus growths were obtained from the various organs, and showed that streptococcus infection was the cause of death.

Summing up, after considering what light might be thrown by this case on some undecided points, Davis believes it is feasible to remove the larynx under eucaine anesthesia. If the two operations are performed simultaneously, and a favorable course is pursued, the result will be brilliant, the patient being "out of bed on the fourth day." He believes with Delavan that preliminary tracheotomy ought to be done. The leaving of the esophageal tube projecting from the wound he considers unnecessary, the patient swallowing on the third day. The wound need not be tamponed, but can be closed from the upper edge of the trachea to the hyoid bone. These patients can make their wishes understood by speaking in a short time after the removal of the larynx. The removal of the larynx, in the case he operated on, from below upward, was found comparatively easy: going up one side, then across at the hyoid bone, and down the other.

VENTRAL HERNIA FOLLOWING ABDOMINAL SECTION.

EADS (*Annals of Surgery*, January, 1901) believes that fifteen per cent of all patients upon whom laparotomy has been performed, if examined five years or more thereafter, will be found to be suffering from postoperative hernia. During the last two years he has operated on eight cases of ventral hernia following abdominal section, only two of which occurred after operations which he

himself performed. He believes that intact, healthy muscular fiber is the only safeguard against hernia; and in view of clinical experience, that the first rule should be to make the abdominal incision parallel with the direction of the motor nerves and of the most important muscular fibers supplied by these nerves.

In the consideration of the incision, the following important points must be taken up:

1. Length is largely dependent upon the thickness of the superficial fascia; it must be sufficient to allow free access to the muscles whose functional integrity is essential to success.

2. The length must be relatively greater when muscular fibers are to be separated instead of divided.

3. It must vary with the pathological condition for which the operation is performed.

4. An opening of sufficient size must be secured for thorough exploration and to obtain the requisite degree of precision and rapidity in manipulation.

5. A long incision through the skin and superficial fascia does not predispose to hernia.

6. It lessens the mortality by providing ample space for the protection of surrounding viscera.

7. It lessens shock by diminishing the time required for the operation, and also the duration of the anesthesia.

Eads concludes that the rule should be: Let the incision be long enough to provide every facility for thorough work through muscular fiber and nerves which have been separated rather than divided.

Of the incisions which he has found most useful, one begins about two finger-breadths below the xiphoid appendix. It gives ready access to the stomach, and through it most of the operations on that viscus may be done. A second incision is made to the left of the rectus muscle parallel to and a little below the costal arch; it is directly opposite the stomach, and gives access to the vicinity of the cardiac orifice in the operation of gastrostomy. The third incision, for cholecystotomy and other operations on gall-bladder and gall-ducts, is from four to six inches in length, and three finger-breadths below the costal margin, the center of which corresponds to the apex of the tenth costal cartilage.

Eads, experiencing difficulty in reaching the appendix through a McBurney incision in acute suppurative cases, devised another method of approach in a more dependent part. The incision overlies the outer border of the cæcum and leads directly to the appendix. It is slightly curved outward and downward, crossing an imaginary line drawn between the anterior superior iliac spines. The center of this curve is from an inch to an inch and a half to the inner side of the right superior iliac spine. The skin and superficial fascia are incised for about two inches.

An incision in the linea semilunaris tends to draw the wound apart by reason of muscular action on the outer side and inaction due to paralysis of a portion of the rectus on the inner side. Incision through the fibers of the rectus is not quite so unfavorable in its results as regards hernia, yet it divides the motor nerve. It is applicable only in non-suppurative cases, as it cramps the opening, and as enlargement by incision or separation in either direction leads away from the seat of the disease.

Incision in the median line offers no advantages, and should be abandoned except in cases of ruptured abscess and diffusion of pus in the free peritoneal cavity.

The incision which divides the united aponeurosis of the rectus muscle, together with one of its sheaths, owing to the practical absence of the linea alba below the umbilicus, makes a fortunate provision, inasmuch as hernia would take place more often were it not that the parallel muscular fibers are directly involved in the healing process, thereby adding strength to a situation where all the resistance possible must be offered against intra-abdominal pressure.

In the very corpulent, the incision recommended by Kelly through the umbilical ring, where the abdominal wall is thinnest, from absence of fat and muscular tissue between the skin and peritoneum, lessens the danger of suppuration during convalescence and of hernia thereafter. Should it be carried above the umbilicus, care should be taken to incline it toward the left to avoid the suspensory ligament of the liver.

In the treatment of ventral hernia, Eads concludes that every effort should be made to increase the bond of union by bringing into the wound area as much tissue as possible for approximation. This can be done better by the use of a modified mass suture which in no way interferes with the accurate apposition of the structures.

In closing the abdominal wound, Eads first unites the peritoneum by a continuous suture

of fine catgut. He then employs a well curved, stout, Hagadorn needle armed with a silkworm-gut. The needle enters the skin about a quarter of an inch from the edge of the incision, passes into and through the superficial fascia and associated fibrous structure, picks up the subperitoneal areolar tissue and peritoneum near the border of the wound. The needle is again introduced on the opposite side, passing through like structures in reverse order. After all the sutures are in place and hemostasis accomplished, the wound is raised by means of the sutures in the hands of an assistant, while the operator removes the protecting gauze and ties the sutures.

THE URETERAL CATHETER "A DEMEURE" IN PREVENTIVE AND CURATIVE TREATMENT OF RENAL FISTULA.

ALBARRAN (*Journal of Cutaneous and Genito-Urinary Diseases*, December, 1900) believes that by means of the ureteral catheter *a demeure* there can be prevented the formation of a fistula or the cure can be hastened. He believes further that a certain number of fistulas which do not close spontaneously, and are due to permeable strictures of the ureter, may be made to close by this means. He reserves uretero-renal operations for those cases where ureteral drainage proves useless.

The preventive treatment consists in introducing a large catheter into the ureter at the time nephrostomy is performed, the upper end in the pelvis and the lower extremity passing out of the meatus. After incising the kidney, the author passes a small catheter up the ureter, bringing it up to the kidney. When the renal pocket is opened, he uses this catheter as a guide over which he passes a No. 10 or 11 catheter from above downward.

When ureteral catheterization cannot be done, it may be possible to find the ureteral opening into the pocket, and from there to pass a catheter into the bladder. The catheter may be seized in the bladder with a lithotrite and be brought out by the meatus. Albarran has thus treated two cases successfully.

The kidney is drained by the lumbar wound while the catheter is in place. The following day lavage may be done with silver nitrate or boric acid through the catheter and drains.

The lumbar drain is removed, on an average, after a week, and the urine passes by the catheter after a few days. The catheter serves now for lavage, and may be removed a few days after the flow from the lumbar wound ceases.

The author has operated by these means on seven cases of pyonephrosis, and obtained complete cure without fistulæ after three or four weeks.

In the curative treatment, when a urinary fistula is already present there is introduced a No. 6 or 7 catheter as far as the pelvis. Often from the first day all the urine will pass through the catheter. Some days later a large catheter replaces the first; this is introduced with a stylet, gradually increasing the size up to No. 12. After the lumbar wound is well cicatrized, the catheter is removed. In this way Albarran has cured a fistula in two cases in from fifteen to twenty days. In two other cases the fistula closed well, but withdrawal of the catheter was followed by renal retention, demanding a uretero-renal operation.

Ureteral drainage thus done will not succeed unless the catheter can be made to penetrate as far as the interior of the pelvis. It fails further if the ureter is inserted too high above the renal pocket.

ACTION OF THIOSINAMIN UPON CICATRICIAL TISSUES.

Thiosinamin, or sulphocarbonate of allyl, belongs to the family of the derivatives of the essence of mustard, and is not used internally. It is especially serviceable to the dermatologist, who finds its application in the removal of cicatrices. It also gives good results in glandular tumors, and old exudates after the inflammatory stage is passed. It is used as a subcutaneous injection in an alcoholic solution of ten or fifteen per cent, from three to fifteen minims being driven in at a time.

According to von Hebra, two injections a week should be given in the subscapular region. These injections are painful.

The following formula has been proposed as an injection: water and glycerin, each 45 parts; thiosinamin, 10 parts.

When it is found impossible to continue the injections, the medicine may be given by mouth in gelatin capsules, each containing a sixth of a grain. Of these capsules, from three to six are given a day. The results from them are slow, and not very sure.

SUDDEN DEATH BY INHIBITION.

Inhibition—that is, the arrest of circulation and respiration consecutive to a powerful nervous impression—is an accident which, though rare, is so appalling that it is important to have attention directed to the possibility of its occurrence.

Poirault (*Journal des Praticiens*, Feb. 16, 1901) finds that the principal causes of this form of sudden death are contusions of the genital organs, of the larynx, and of the abdomen. In women, manipulations of the uterus with the idea of producing abortion, intra-uterine injections, vaginal injections, or even vaginal palpation, have each in turn caused sudden death. At times even a slight traumatism of the anterior cervical region has produced instant death. The fatal effect of blows upon the epigastrium is well known. Hospital records show that during operations upon the soft palate, the pharynx, the nasal fossæ, and in the course of the dilatation of the sphincter or puncture of a cyst, the patient may suddenly perish without obvious cause. This same effect may follow a sudden immersion in cold water, and ingestion of cold drinks. Young children suddenly die during their sleep. In people with extremely sensitive nervous symptoms, a very simple emotion may result fatally.

SUBCUTANEOUS RHEUMATIC NODULES IN ADULTS.

It will be remembered that subcutaneous rheumatic nodules are at the best rare, and are commonly observed in young people. STRANDGAARD, quoted in the *Journal des Praticiens* of February 16, 1901, has collected a number of cases in which this infection was observed after middle age.

The nodules commonly developed in the prolonged, recurrent type of rheumatism, particularly that which was polyarticular, complicated by endocarditis, but they were also observed in the chronic deforming type. Each nodule persisted for a varying period of weeks, months, or even years, this persistence bearing a certain relation to the chronicity of the joint affection.

It is impossible to say whether it develops suddenly or rapidly, but once having been discovered, the growth may be slow and progressive or irregular and rapid.

Sometimes these nodules are painful and extremely tender. They are never placed in the skin itself, but in the subcutaneous tissues, often adhering to the aponeurosis, tendons, or periosteum. They are particularly acute about the olecranon. They are also found about the tendons of the extremities and surrounding the finger joints, upon the cranium, sternum, spinous processes of the vertebræ, clavicle, etc.

They are more numerous upon the extensor than upon the flexor surfaces of the extremities. Rarely more than twenty are found at one time. They are usually made up exclusively of fibrous tissue. Incidentally, cartilage or bone may be found.

As to the treatment, this should be generally directed against the rheumatic state rather than locally.

SILK LIGATURES AND SUTURES.

BECK (*International Journal of Surgery*, March, 1901) has found that silk sutures are not as harmless as they are generally regarded. He believes that as much as possible absorbable material should be used. If unabsorbable silk material is used, the thread should be small in size, as it takes a much shorter time for such a small ligature to pass through. Interrupted sutures should be preferred to continuous sutures, as the latter take a very long time to slough out. Symptoms arising from a buried suture must always be borne in mind, and eventually, if sloughing of a suture is suspected, a way should be opened for the thread that it may not take a dangerous route. Some of the cases observed show that even absorbable sutures are subject to these laws, but in a minor degree.

COCAINE AND EUCAINE IN LOCAL ANESTHESIA BY COMBINED INFILTRATION AND REGIONAL METHODS.

TERRETT (*New Orleans Medical and Surgical Journal*, March, 1901) makes a concise and what he believes to be a tenable argument for the more general use of the combined method of applying cocaine and eucaine in local anesthesia, and for the advisability of carrying this procedure, whenever feasible, clear into the lines of major surgical work.

After studying several cases he concludes that:

1. Cocaine and eucaine are undeniably the most potent, efficacious, and reliable local anesthetics in general use.

2. That the agents in a menstruum of simple sterile water at ordinary temperature, when freshly prepared, give entire satisfac-

tion, and, when injected in the proper manner, can be made to engender the most profound and complete anesthesia.

3. That cocaine and eucaine must infallibly supplant a general anesthetic, whenever this latter is contraindicated by some organic lesion, whereby its use would be a menace and directly endanger the patient's life.

4. That the combined infiltration and regional method is of unquestionable value, and its practical usefulness confined especially to those parts where the nerve distribution is easily accessible—notably to the extremities and ribs.

5. That the entire absence of any untoward or unfavorable symptoms, as a result of this procedure, argues most favorably and cogently for its ulterior recognition and more general use.

THE POSITION OF ACUTE PERICARDIAL EFFUSIONS.

APORTI and FIGAROLI (quoted in the *Boston Medical and Surgical Journal*, March 7, 1901), as results of experiments on the cadaver, have reached the following conclusions:

1. Pericardial effusions can be demonstrated by percussion only when they exceed 150 or 200 cubic centimeters.

2. Six hundred and fifty to 700 cubic centimeters is the maximum which the pericardium can contain. (This probably refers to the maximum amount which can be injected after death.)

3. With the patient on his back, the cardiac dulness extends in all directions proportionally to the amount of exudate. In the vertical position the dulness is more marked in the region of the apex beat and the cardiohepatic angle. In the first case the anterior surface of the heart is only partly covered, and in the second case it may finally be fully covered.

4. In the horizontal posture the great vessels are surrounded by the exudate when present only in small amount, while in the erect position the base of the heart remains free even in the presence of a large quantity of fluid.

HEMATURIA CURED BY GELATIN INJECTION.

COSSNER (*Münchener Medicinische Wochenschrift*, 48 Jahrg, No. 2) reports a case of obstinate and dangerous hematuria associated with pain in the right lumbar region. After prolonged and fruitless treatment by other means, 200 cubic centimeters of sterile 25-per-cent solution of gelatin was injected subcutaneously, occasioning much pain but promptly stopping bleeding.—*Philadelphia Medical Journal*, March 9, 1901.

A CONTRIBUTION TO THE BOTTINI OPERATION FOR THE RADICAL RELIEF OF PROSTATIC OBSTRUCTION.

BANGS (*Medical Record*, March 9, 1901) has noted that if the Bottini operation for the relief of prostatic obstruction is performed, the flow of electricity must be maintained to a degree that will keep the blade at a white heat; that in measuring a given case for the length of the incisions, allowance must be made for the action of the galvanic cautery beyond the distance at which the knife shall actually penetrate; and that the operation must be done with great slowness to prevent hemorrhage and to get the best results.

Bangs has had thirty-four operations by this method. The ages of the patients varied from forty to seventy-five years. Three patients were operated upon twice; one had only what is termed a "bar" at the vesical neck. Another patient, two years before the Bottini, had been subjected to castration; when he came to Bangs he still had six ounces of residual urine, and in addition calculi in the bladder. After the Bottini operation, performed in May, 1900, he had two ounces of residual urine, but diminishing in quantity. He has been classed among those who have improved only.

The largest percentage of cures was among the patients wholly dependent upon the catheter. Sixty per cent of those operated upon have discontinued the use of the catheter; twenty per cent have an increased amount of spontaneous urination, and are able to reduce the use of the catheter from one-half to only that which is required for occasional treatment; twenty per cent received no benefit, or, if any, very little.

Of three cases where the operation was repeated, in only one was there any benefit.

There was one death directly attributable to the operation, the patient dying of acute sepsis twenty-four hours after the operation; the posterior incision probably opened the deep urethra. There were two other deaths which occurred about three weeks after the operation. One of these patients developed cardiac attacks five days after the operation.

It was ascertained that he had been subject to these attacks for years. He died on the twenty-fifth day during one of his attacks. The second patient who died left the sanatorium ten days after the operation and went upon a spree; an old nephritis lighted up, and death ensued on the twenty-second day after the operation.

As to permanency of results by the Bottini operation, Bangs believes that time only will tell.

Bangs is unable to explain his twenty per cent of failures, but suggests that, as the treatment was the same in all cases, the cause of failure may be due to that portion of the prostate called extravesical, which cannot be reached by the galvanocautery knife.

SARCOMA OF THE INTESTINES AND FIFTEEN CASES OF RESECTION.

ZWALENBURG (*Journal of the American Medical Association*, March 9, 1901), after a study of fifteen cases of resection for sarcoma of the intestines, draws the following conclusions:

Sarcoma of the intestines, more common than is taught, much more frequently affects the small than the large intestine. The ileum seems to be its favorite location. Stenosis is rarely produced; dilatation is more frequent. Usually there is growth from one side of the bowel entirely. In a case reported by Zwalenburg, the symptoms of obstruction were evidently due to a change in position of the freely movable tumor, and were entirely relieved by manipulation.

The diagnosis is difficult and will probably remain obscure. If a smooth, freely movable tumor found in the abdomen cannot be satisfactorily accounted for it may indicate sarcoma of the intestine, especially if there be also present the general picture of sarcoma with its peculiar anemia.

Once the disease is suspected there should be no hesitation in performing exploratory laparotomy.

There is evidently not much shock from operation for the removal of intestine, as only three of thirty-one patients reported by Kukula died from collapse. In his recently reported cases there was resection of more than one meter of small intestine, and it was demonstrated that there is practically no limit to the amount of intestine that can be safely removed. In one patient only two-fifths of the small intestine was left.

Many of the cases of so-called collapse and death from shock are after all cases of sepsis. Zwalenburg observes that children bear the operation wonderfully well.

The only treatment for the intestinal form of sarcoma is resection. It is probably correct to assume that in extirpating a sarcoma there is removed a toxin center as truly as when an abscess is opened.

THE VALUE OF THE TUBERCULIN TEST IN TUBERCULOSIS OF THE BONES AND JOINTS.

FRAZIER and BIGGS (*University of Pennsylvania Medical Bulletin*, March, 1901), in summarizing the conclusions of a paper on the value of the tuberculin test in tuberculosis of the bones and joints, direct attention to a table showing the percentage of positive reactions obtained in various classes. Seventy-eight per cent of those who recovered, one hundred per cent of the "quiescent," and eighty per cent of the active responded in a positive manner. In other words, those cases in which for periods varying from one to seven years there had been no clinical evidence of active tuberculosis reacted with the same relative frequency as those in which there was every reason to believe the tuberculous process was active.

The patients classed as recovered had submitted to a radical operation for the removal of the affected joint or the affected area in the bone. The cases classed as quiescent had only been under observation for a limited time; in about a year they may be advanced to the class of recovered.

In an attempt to account for the high percentage of positive reactions in apparently healthy individuals, the reliability of the tests made can be accepted without question, as clinical evidence from thousands of cases certifies to the reliability of the tuberculin test. As to a misinterpretation of the clinical phenomena, certain it is that if one is at any time justified in pronouncing a case of tuberculosis of bone or joint cured the cases so classified in these investigations belong to that category. Frazier and Biggs ask if the positive reaction might not be attributable to remnants of the disease, such as small islets of tissue, microscopic in size perhaps, wholly encapsulated, in which were embedded the bacilli of tuberculosis in a dormant state, especially about a joint which had for years been the seat of the disease. They note, also, that the reactions in those who recovered might have been due to the presence of

tubercular lymphadenitis in the mediastinal, mesenteric, or retroperitoneal glands.

The existence of tubercular foci deep-seated in the system of those who have been subjects of tubercular bone and joint disease would serve to stamp as unreliable the tuberculin test when employed for the demonstration of the presence or absence of tubercular lesions in other tissues of the body.

Reviews.

A HANDBOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS. By Samuel O. L. Potter, A.M., M.D., M.R.C.P. Eighth Edition, Revised and Enlarged.
Philadelphia: P. Blakiston's Son & Co., 1901.

Dr. Potter tells us in this the eighth edition of his Therapeutics that its revision was commenced at Manila while he was serving as a surgeon of the United States Army, and that therefore he has introduced into its pages facts which he has accumulated during his experiences in that tropical climate. He has also added a large number of new articles to the list of subjects considered.

Dr. Potter's book, it will be remembered, is divided into two parts: One, dealing with drugs, which are arranged alphabetically, and another which deals with diseases; and he has also introduced a discussion of the treatment of a good many maladies which were not heretofore included, such as Dhobie Itch, Hemoglobinuric Fever, Lymphadenoma, and various forms of Tinea. He has revised many other articles.

The part of the book which deals with the treatment of disease is not in the form of ordinary text, but consists of short sentences containing the advice of various writers. For example, under Lymphadenoma we find it stated on the authority of Gowers that phosphorus has had good effects in a few cases, and should be used if arsenic is not well borne; and again, that bone-marrow is perhaps worthy of trial. The letters (Id) follow this statement, with the object of referring one to a certain reference. The only difficulty with this portion of the book is that it in no sense represents the views of the author himself; and in a number of instances we have found that abstracts have been made of methods of treatment which are peculiar to the individual who has written the article and not followed by most practitioners. Aside from these facts, the book certainly deserves the cordial support of the profession, which it has received in the past. Its recommendations are safe, its descriptions are clear, and it contains an immense amount of valuable information.

In regard to the use of alcohol, Dr. Potter is evidently a strong believer in the value of this substance as a drug and also as a luxury, and he quotes various authors who agree with him in supporting its use in moderation, even in conditions of health which are associated with overwork. So far as the use of alcohol is concerned in conditions other than those of disease, we have always felt that the statement of the elder Gross concerning this drug contained a large amount of truth, namely, that "the man who drinks whiskey before he is forty is a fool, and that the man who does not drink it after he is forty is a fool." While this aphorism has the fault of all aphorisms, there is a large amount of truth in it notwithstanding the protestations of our prohibition friends.

In conclusion we may add that Dr. Potter's Therapeutics covers a wider field than many books which bear this title. He discusses a good many drugs which are rarely employed, and therefore the book is as useful to one who wishes to look for unusual information as it is to him who wishes a handbook for ready reference in the treatment of disease as he meets it from day to day. The fact that the book has already proved itself a success, and that Dr. Potter has devoted considerable time to its recent revision, is an earnest of its continued popularity.

A COMPEND OF PHYSIOLOGY. By Albert P. Brubaker, A.M., M.D. Tenth Edition, Revised and Enlarged. Illustrated.
Philadelphia: P. Blakiston's Son & Co., 1900.

It is more than fifteen years since Dr. Brubaker first published this excellent little quiz-compend, which cannot be considered as competent to take the place of the more complete works on Physiology, and yet is undoubtedly the best of its kind. Although the type is small, it is easily read, and the statements which are made by the author in regard to the functions of the various portions of the body are correct. The characteristic of Dr. Brubaker's teaching has been that he has found it possible to get down to the level of the student, and not to immerse him so deeply in technicalities that his ability to understand physiological processes is drowned out; and this volume illustrates this faculty of Dr. Brubaker as a teacher very well indeed.

MEMORANDA OF POISONS. By Thomas Hawkes Tanner, M.D. Eighth Revised Edition by Henry Leffmann, A.M., M.D.
Philadelphia: P. Blakiston's Son & Co., 1901.

This little primer of poisoning, as it might be called, has been before the profession for many years, and the fact that Dr. Leffmann has edited it is an evidence that the advice given in its pages is modern and correct. There are a good many things in connection with the treatment of the various points on poisoning which seem to us to have been left out. Thus, nothing is said about the necessity of placing a patient suffering from aconite poisoning in a prone position; nor has anything been said about the administration of strychnine as a respiratory and cardiac stimulant. We also are obliged to disagree with the statement of the author that there is no regular antidote for phosphorus; and, as all know, ozonized oil of turpentine cannot be obtained, and so it should not be recommended as an antidote. Peroxide of hydrogen and permanganate of potassium are now the recognized antidotes. It is evident in looking over the pages of this volume that the chemistry has received more attention from Dr. Leffmann than have the newer antidotes which are employed in common poisoning.

LARYNGEAL PHTHISIS, OR CONSUMPTION OF THE THROAT. By Richard Lake, F.R.C.S.
Philadelphia: P. Blakiston's Son & Co, 1901.

This is a monograph of less than 100 pages upon tubercular infection of the upper air-passages. It describes the pathology and treatment of the various conditions which would naturally fall under such headings, and there is an appendix which contains a list of intratracheal injections which have been recommended at various times, of powders, pigments, vapors, and inhalations which are often useful in such cases; and finally a series of chromolithographs showing the changes which take place in the larynx affected by tuberculosis. The volume closes with a table containing 329 cases and showing the age, sex, and portion of the upper respiratory tract affected, with a note on the treatment of the condition present. To those who are specially interested in this subject, we think that this little volume will prove of interest.

THE INTERNATIONAL MEDICAL ANNUAL. New York: E. B. Treat & Co., 1901.

This valuable year-book has been presented to the profession for so long that many practitioners are familiar with it. The list of contributors to this volume includes well known medical men on both sides of the Atlantic, and is to a certain extent a guarantee of the quality of the information which it contains. The abstracts of various articles which are included in its pages are, as a rule, quite brief, and often serve to give one only an idea of what the original paper contains, so that it is necessary, if a full consideration of the matter is needed, to go to the original article. As it is well known, this volume as published in America is practically a reprint of the English edition which is very popular with British practitioners. As far as we can determine the present issue of the year-book is quite up to its predecessors and affords a brief summary of medical literature for the past year.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Specially Prepared Articles. Edited by Henry W. Cattell, A.M., M.D.
Philadelphia: J. B. Lippincott Co., 1901.

This is the first volume of the eleventh series of this publication. It opens with an article on new remedies by Dr. A. A. Stevens, in which he discusses a considerable number of the newer therapeutic possibilities of the last year or two. Other articles follow by Renault on the treatment of chronic gonorrhea, and one upon the treatment of eczema by Hallopeau. The remaining articles in the volume deal with subjects such as neurology, surgery, obstetrics and gynecology, diseases of the eye, and laboratory methods, and the volume closes with an article upon the progress of medicine during the year 1900 by N. J. Blackwood, M.D. There are quite a number of plates and photographs in the present volume. To those practitioners who are unable from time to time to visit the large cities and put themselves in touch with recent hospital methods, we can readily imagine that such a publication would do much toward keeping their memory fresh in regard to the latest medical and surgical procedures.

A MANUAL OF PRACTICAL HYGIENE FOR STUDENTS AND PHYSICIANS AND MEDICAL OFFICERS. By Charles Harrington, M.D.
Philadelphia and New York: Lea Bros. & Co., 1901.

This is one of the larger volumes that have been published within recent years upon this important subject, covering nearly 750 pages and rather closely printed. As may be imagined from the size of the volume, it deals pretty exhaustively with the subject of which it treats. The first chapter deals with various preparations of food, their proper preservation and nutritive value, and

then follow other chapters upon the air, the soil, water, habitations, and schools; garbage, disinfection and disinfectants, quarantine, military hygiene, naval and marine hygiene, tropical hygiene, hygiene of various occupations, and vital statistics. Of the three remaining chapters in the volume, chapter 15 deals with personal hygiene; chapter 16, vaccination; and chapter 17 with the disposal of the dead. It is an excellent manual and worthy of confidence and praise.

ORAL SEPSIS AS THE CAUSE OF SEPTIC GASTRITIS. By William Hunter, M.D., F.R.C.P.
London and New York: Cassell & Company, Limited, 1901.

This little brochure is practically a reprint of an article which appeared in the *London Practitioner* of December, 1900, and is designed to spread the views held by Dr. Hunter and indicated in the title. He believes, as some of our readers may perhaps know, that even certain cases of pernicious anemia have their origin in oral sepsis, and it would seem exceedingly likely that filthiness about the mouth readily tends to produce a general infection. While we are not able to agree with Dr. Hunter in many of the views which he advances, we think that he has done a service in drawing attention to this important matter.

TUBERCULOSIS AS A DISEASE OF THE MASSES AND HOW TO COMBAT IT. By S. A. Knopf, M.D.
New York: F. M. Firestack, 1901.

This is a paper-bound pamphlet of less than ninety pages, and is the essay which received the international prize offered by the International Congress to Combat Tuberculosis held in Berlin in 1899. It has been published in German, Dutch, French, Italian, and Russian, as well as in English, and has been widely distributed by the Congress with the object of aiding in the prevention of the spread of this ever-present disease. The price of this essay in paper cover is twenty-five cents, in cloth sixty cents, and it is sent post-paid on receipt of stamps. Boards of Health and other bodies can obtain it at cheaper rates. It is written by one who has devoted a number of years to the study of this important subject, and whose essay upon consumption received the Alvarenga prize of the College of Physicians of Philadelphia some eighteen months ago, since which time we have reviewed most favorably that essay, which was a credit to its author, and of great value to the subject of which it treats. The present essay not only deals with how infection by the bacillus may be largely avoided, but also gives careful directions as to how those persons who have badly developed chests, and therefore are susceptible to infection, may, by proper exercises, properly expand their lungs. It concludes with chapters upon the open-air treatment of tuberculosis, and with what philanthropists and other people can do to combat this disease amongst the masses. If a few more persons would be as active and interested in this important subject as Dr. Knopf, of New York, we feel convinced that a distinct advance would be made in preventing the spread of this dreadful malady.

TREATISE ON APPENDICITIS. By G. Y. Fowler, M.D.
Philadelphia: J. B. Lippincott Co., 1900.

This treatise opens with a chapter devoted to anatomical considerations, followed by one on the inflammatory lesions of the appendix. Both are clear and direct, and embrace practically all that is known on the subject. The third chapter is devoted to the clinical history of acute conditions of the appendix, and the fourth and fifth chapters to special types and complications.

The author thus summarizes the most important points of the diagnosis of appendicitis:

"An almost never-failing characteristic of acute appendicitis is the marked suddenness with which the clinical course is initiated. The patient may be awakened from a sound sleep, or seized while engaged in his daily routine, by sharp frequently recurring or more or less continuous colicky cramping pains.

"In the majority of instances the pains are referred rather to the epigastrium or to the neighborhood of the umbilicus than to the region of the appendix at the commencement of the attack.

"The symptom vomiting may depend to some extent upon the fact of the presence or absence of food in the stomach.

"Pain localized in the region of the appendix frequently fails to attract attention until several hours following the onset of the attack. Tenderness usually develops earlier. The latter may be delayed, or its value as a symptom greatly lessened or destroyed, by the administration of opium. A source of fallacy may arise from an abnormally located ileocæcal junction, and confuse the diagnosis by giving rise to an area of maximum tenderness other than at the usual site of the appendix.

"The lower portion of the right rectus muscle is notably rigid, either at the com-

mencement of the attack or shortly thereafter.

"Increased pulse-rate and rise of temperature may bear no relation to the severity of the attack or its progressive character.

"A tumor can rarely be made out until between the second and third days. A fixed and tender tumor in this region is more than likely to be of inflammatory origin, while a movable and comparatively insensitive mass will, in all probability, prove to be a neoplasm.

"Cases are occasionally observed in which the symptoms are less acute, even to the extent of almost rendering justifiable a diagnosis of simple indigestion or intestinal colic.

"Cases that have been chronic from the beginning are very rarely observed. The great majority of those observed have either given a previous history of one or more subacute attacks or have followed a well defined acute attack. The points relied upon in making the diagnosis have been the above points in the history, considered in connection with the existence of well marked tenderness in the ileocæcal region. In some instances, particularly where a recent attack has been suffered from, an immovable tumor has been demonstrated upon palpation."

The differential diagnosis is considered at almost confusing length. There are chapters devoted to non-operative treatment, to treatment of complications, and there is a particularly complete special section of the book devoted to operative treatment.

This is a valuable contribution to the subject at the hands of a practical and experienced surgeon, and will prove serviceable to all who are called upon to treat appendicitis either in a medical or in a surgical way.

PRINCIPLES OF SURGERY. By Nicholas Senn, M.D., Ph.D., LL.D. Third Edition.
Philadelphia and Chicago: F. A. Davis Company.

This third edition of Senn's popular work on general surgery has been thoroughly revised. It has many new illustrations and there are two new chapters—one on Degeneration, and the other on Blastomycetic Dermatitis. As is indicated by the title, the work is devoted to the fundamental principles of the art and science of surgery, and is designed for the use of the student and general practitioner. It is meant by the author to be a systematic treatise on the causation, pathology, diagnosis, prognosis, and treatment of the injuries and affections which the surgeon is most frequently called upon to treat. Moreover, a more successful effort has been made intimately to connect the modern science of bacteriology with the etiology and pathology of surgical affections than has heretofore been noticeable in text-book writing.

The first chapter is devoted to regeneration, and after a general consideration of this subject the author indicates the practical application which this study has upon the treatment of wounds. He lays down an axiom, which all will accept, that brilliant operators are not always the best surgeons. "The best results in surgery follow the one who is most painstaking in following out the minutest details."

Under regeneration, minute directions for skin-grafting are given; also the various methods of tendon, muscle, and nerve suture. Senn's method of uniting fractures by bone ferrule, and of procuring union of intracapsular fractures of the femur by plaster-of-Paris splints and a compress and set screw are illustrated at length.

There are chapters on inflammation, pathogenic bacteria, necrosis, suppuration, septicemia, pyemia, erysipelas, tetanus, hydrophobia, tuberculosis, actinomycosis, blastomycetic dermatitis, anthrax, and glanders.

Though it is true that Senn's reputation, most justly based on admirable work, would in itself be enough to popularize any book to which his name is affixed, this work is one of such merit that it would be accorded a generous reception had it been written by an unknown author. As it is, the book is a combination of the practical and scientific. It is an inspiring departure from the too widely followed custom of omitting from text-books the foundations on which true knowledge should be built.

To those who wish to be thoroughly imbued with the spirit of modern and accurate scientific work this book should prove indispensable.

THE TECHNIQUE OF SURGICAL GYNECOLOGY. By Augustin H. Goelet, M.D.
New York: International Journal of Surgery Co.

This work is devoted exclusively to operative technique, preparation for operations, and the after-care of patients.

The first chapter describes the preparation of the patient for gynecological operation. The general preparation when practicable should be continued for a few days or at most a week. Calomel is used liberally, for the purpose of increasing the elimination of

bile into the intestines. Twelve to eighteen calomel triturates, one-tenth grain each, are administered all at one dose at bedtime, followed in the morning by thirty grains bicarbonate of soda in a large cup of hot water, or two teaspoonfuls of phosphate of soda in hot water. A strict diet of beef and dry crisp toast, buttered when done, is said to be most satisfactory. The patient should be given daily baths during the time devoted to preparation.

There are three methods given for sterilizing hands — that by chloride of lime and carbonate of soda, that by permanganate of potash and oxalic acid, and that by synol.

The first operation described is curettage of the uterus. The technique of this and all subsequent operations is given in minute detail. Next follows trachelorrhaphy for repair of ulcerated cervix; this is well illustrated.

Perineorrhaphy, colporrhaphy, cystotomy, closure of vesico vaginal fistula, amputation of the cervix uteri, making and closing celiotomy wounds, ventral suspension, shortening of the round ligaments, vaginal ovariotomy, abdominal ovariotomy, oophorectomy, salpingectomy, division of the uterine arteries, abdominal myomectomy, vaginal myomectomy, vaginal enucleation of submucous fibroids, abdominal hysterectomy, vaginal hysterectomy, removal of the vermiform appendix, operation for ectopic gestation, and nephropexy, are all described.

The final chapters are devoted to accidents that may occur in the course of abdominal or vaginal section, complications that may arise immediately after or during convalescence from abdominal operations, and the after-care of patients convalescing from gynecological operations.

This book should prove extremely serviceable both to those working in gynecology and to those who, through environment or preference, are compelled occasionally to perform a certain number of gynecological operations.

VENEREAL DISEASES. By F. R. Sturgis, M.D. Seventh Edition. Revised and in Part Rewritten by F. R. Sturgis, M.D., and Follen Cabot, M.D. Philadelphia: P. Blakiston's Son & Co., 1901.

This book, which is dedicated to the medical students of the United States, is essentially a student's manual, and as such deals only with the essentials of chancroid, syphilis, and gonorrhea.

As could be expected the major part of the work is devoted to therapeutics, and by the liberal use of italics the facts which seem to the authors of particular importance are so emphasized as to make a strong impression on the reader's mind.

In the treatment of chancroid the author holds that the two cardinal points are arrest of the virulent and destructive character of the disease, and cleanliness, which, of course, implies the use of active cauterants.

Sturgis is very explicit in his directions for the treatment of syphilis, to the effect that the constitutional medication should not begin until the appearance of secondaries.

In the chapter on gonorrhea it is worthy of note that the statement to the effect that bilateral epididymitis is followed by sterility is not in accord with ordinary clinical experience. This result follows sometimes, but not invariably, and probably not even as a rule.

In the treatment of gonorrhea it is stated that the so-called abortive method is not advisable as a routine procedure. The treatment advised is in general that which receives the indorsement of the profession.

This book should prove extremely serviceable to students.

CHRONIC URETHRITIS OF GONOCOCCIC ORIGIN. By J. De Keersmaecker and J. Verhoogen. Translated and Edited, with Notes, by Ludwig Weiss, M.D. New York: William Wood & Co., 1901.

To this book there is a preface by Oberlander, the reason for which does not at first seem clear until one discovers that it is meant to emphasize the importance of the urethroscopic treatment of gonorrhea.

Weiss, the translator, holds that the urethroscope is indispensable to the specialist, and ought soon to become as favorite an instrument in the hands of the general practitioner as the laryngoscope. He claims for it that it enables the physician to localize circumscribed patches, erosions, and ulcers for topical applications; to treat or destroy the main abodes of the gonococci, the diseased urethral glands; to presage relapses, to determine the stage of infiltrations, and to pronounce a cure. In short, that it furnishes information unobtainable by any other method.

It is interesting to note that Weiss frankly states that he is conscious of some shortcomings in this work.

The first chapters are devoted to anatomical, pathological, and bacteriological observations. Under the heading of localization, the two-glass, three-glass, and five-glass tests are described. The last, recommended by Kollman, is by preference made in the morn-

ing before the first urination has occurred. The patient, standing, has a soft catheter introduced up to the bulb, and lavage is made by means of a syringe. The pressure should be slight for fear of forcing the liquid into the posterior urethra, which according to Kollman is easily done. The washing water is collected in the first glass, into which is poured successively all the water which flows from the canal at each washing as long as it brings with it any shreds. Once the washing returns clear this last specimen is preserved in a second glass. Now the patient urinates into three glasses, just as in Jadassohn's test.

In the section devoted to urethral endoscopy, many ingenious instruments are described, together with the findings incident to careful examination. This, indeed, constitutes a large part of the book.

The third part is devoted to the treatment, both general and local, and it seems in the main to agree with that customarily adopted by specialists. Dilatation is especially commended, followed by lavage.

There is a chapter devoted to chronic gonorrhea and marriage.

There are excellent colored plates of certain pathological conditions of the urethra as noted by the urethroscope.

The book is a straightforward assertion of the opinions and methods of most of the specialists of the present day.

GALL-STONE DISEASES. By Prof. H. Kerr. Translation.
Philadelphia: P. Blakiston's Son & Co., 1901.

The translator in his preface to the book says that his personal interest in gall-stone surgery was greatly accentuated by the fact that he himself was a sufferer from cholelithiasis, and underwent operation at the hands of Lawson Tait, since which time he has personally operated on many cases. He states that the work of translation has been one of love.

Professor Kerr, in his introduction, modestly alludes to the fact that "he has of all living surgeons done the most gall-stone operations." Of 422 gall-stone laparotomies, he says that he has had but fourteen deaths.

The book is divided in the form of lectures, the first of which is devoted to pathology, the second to examination, the third to diagnosis, and the fourth to the treatment of cholelithiasis. These four lectures are included in the first part of the book. The second part is made up of one hundred clinical and operative histories, of which a close study greatly assists in learning the special diagnosis of cholelithiasis.

The appendix contains the records of eighteen gall-stone operations done by the author between April 1 and May 15, 1899.

Perhaps the first thought that strikes the reader of this book is one of surprise that a surgeon living in Halberstadt should have had such an enormous experience in this particular line of work, an experience which, as he justly states, cannot be matched by that of any other surgeon in the world. Except for the careful and accurate case histories, one might be tempted to fancy Kerr endowed with an imagination florid beyond ordinary experience. It is, however, evident that the work has been done by him, with results well known to surgeons who are familiar with German literature, and which are such as may be obtained by any trained and careful operator.

Kerr's practical observations on diagnosis and treatment are simply invaluable.

The book is written in a spirit of simple self-appreciation and directness that is refreshing and convincing. It should form a part of the medical library of the practicing physician.

TEXT-BOOK OF GYNECOLOGY. Charles A. L. Reed, A.M., M.D., Editor.
New York: D. Appleton & Co., 1901.

Perhaps the multiplicity of text-books on gynecology is an index to the popularity of this branch of surgery and to the special skill with which it is carried out. The present book is designed to serve mainly for practitioners and students. The work is really by many authors. Reed by his editorial ability has arranged it in the form of a fairly compact and well balanced single volume.

The first chapter has the appalling title of prolegomena, which takes the place of a kind of foreword, contributed by Reed and Foster, defining the terms dealing with this specialty and making up its nomenclature. There is also discussed radicalism and conservatism.

The second chapter is devoted to the general etiology, and is contributed by Reed; the third, upon general pathology, is by Hertzog; the fourth, on general therapeutics, is by Reed. Robb writes on the gynecological armamentarium. Reed and Potter discuss the general practice in diagnosis. Reed next follows with chapters on sepsis, asepsis, and shock. Reed and Newman together consider hemorrhage and hemostasis. Hare has contributed a chapter on anesthe-

sia and anesthetics in gynecology. Among many other interesting chapters are to be noted one on diseases of the skin of the female genitals, by Reed and Ravogli; infections of the external genital organs, by Whitacre, Reed, and Ravogli; neoplasms of the external genital organs, by Hertzog, Reed, and Rothrock; and there is a section devoted to the female urinary organs, by Harris. The rectum is considered by Reed, Gant, and Martin, and pelvic diseases and nervous affections by Dercum.

This large subject has been well covered in a book of 850 odd pages. It is admirably and adequately illustrated, is printed in large type, and has been so planned that the information contained in it is most accessible. It is written from a scientific and practical standpoint by men widely known because of their special knowledge. The book can be heartily commended as modern, accurate, and adequate.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

You will probably be glad to have a brief sketch of a very important report by Drs. Mott and Durham on asylum dysentery. The investigation was entrusted to these eminent medical men by the Asylum's Committee of the London County Council. At the outset they define their term "dysentery" as designating the disease which occurs in the lunatic asylums of this country, and which is characterized anatomically by inflammatory lesions of the large intestine or colitis. They object to the use of such terms as "ulcerative colitis," "blood and mucous diarrhea," and even "asylum dysentery" itself, on the ground that the condition is in all these cases one and the same in different stages. One cannot believe that the same disease is caused by amebæ in one place, by micrococci in another, and by colon bacilli elsewhere, but rather we have to deal with a disease of a specific nature. Its rarity in this country appears to be due to improved sanitation, but even so sporadic cases do occur, and under favoring conditions, as in asylums, may become practically epidemic. In rapidly fatal cases the authors found exactly the same conditions as are described by Councilman and Lafleur in tropical dysentery, viz., "that the mucous membrane seems to suffer least, or at any rate the lesions in it are for the most part secondary to those of the submucosa." "The process is essentially one of advancing infiltration and softening in the submucous and intermuscular tissue with following necrosis of the overlying dysentery." In these cases there was no suggestion of an amebic origin, and the authors disregard the claim of the amebæ to be the specific causal agent. Similarly they reject the view that the disease is due to degenerations of the intestinal nerves in lunatics, in that the disease falls also upon those in attendance.

In their investigations the authors were compelled to start *ab initio*. No records of previous outbreaks were in existence to guide them, and at most the brief private notes of the more energetic and intelligent of the medical officers in charge of the asylums; the notes of autopsies were too imperfect to give much assistance, and of course threw no light on the actual prevalence apart from fatal cases.

The crucial test of the identity of all dysenteries lies of course in the recognition of the ultimate cause, and at present we are quite in the dark as to this criterion of diagnosis. The authors consider that failing other reasons for the presence of blood and slime in the stools, it is not improper to consider that a dysenteric condition of the bowel is present in institutions where this disorder is known to be rife. Clinically they recognize the following types: (1) The highly acute case with preliminary fever, lasting till death supervenes in two or three days. (2) The highly acute case with preliminary fever and a temperature which falls rapidly as the collapse proceeds. (3) The case with mild fever and diarrhea, accompanied by slime and blood for a few days, ending in recovery. (4) The mild case where the diarrhea, with blood and slime, lasts but one or two days. (5) Cases of varying degrees of severity, in which after an interval of a few days the symptoms recur, sometimes with fatal result, and sometimes with recovery. (6) Cases which do not clear up after the first week or so, but which continue at more or less intermittent intervals to pass bloody, slimy diarrheal evacuations for months. (7) Cases of intermittent or prolonged diarrheas in which neither blood nor slime has been noticed in the evacuations. Such cases can only be suspected, but some such have come to the

decisive test of an autopsy. It is the recognition of the milder cases which is all important if anything is seriously to be done to eradicate the disease.

Similarly from the side of morbid anatomy the authors found a considerable variation between individual cases. In the most severe and rapidly fatal cases the whole surface of the colon may be intensely inflamed without any appearance of ulceration to the unaided eye, though under the microscope superficial destruction of the mucosa may be seen. In the less acute and chronic cases, an ulcerated condition of the mucous membrane of the colon of varying extent and severity is found. In some cases the mucosa is covered with a more or less thick coating of necrotic material—the so-called diphtheritic dysentery—and in others profound perforating necrotic changes occur, so that the wall of the gut is destroyed at one or more places. Thus in the pathological lesions as well as in the clinical picture this form of dysentery is identical with tropical dysentery; such apparent differences as are found are referable to subsidiary agencies such as climate, subject, and the like. The authors place the disease among the acute infective diseases, inasmuch as they find that it falls upon all sorts and conditions and ages, and also with a definite febrile period, and because of the definitely inflammatory nature of the local lesions, and the occasional epidemic character of outbreaks. The chronicity of some cases and the selective incidence go far to show that the disease cannot be referred to the ingestion of noxious material in the food. One outbreak, in which out of ten cases eight were in adjacent beds, strongly suggested the communicability of the disease from patient to patient. There does not appear to be any ground for the statement that lunatics are specially liable to dysentery or ulcerative colitis, still less for the peculiar proneness of certain types of insanity. Investigation of the inmates of prisons and other institutions would probably show a similar liability.

The diagnosis of the disease is often a matter of great difficulty. These observers in instituting a system of notification found it indispensable to have a return of cases of severe and even of slight diarrhea, as such not infrequently led on to true dysentery. The sheet-anchor in diagnosis is the presence of blood and slime in the stools. In really typical cases the evacuations consist of little else, while in the milder cases the amount might be so small in proportion to the true fecal matter as to elude careful search. In accepting this criterion of diagnosis it is of course imperative to exclude all other causes of intestinal hemorrhage. In dysentery the blood may reach the interior of the bowel in two ways: (1) by actual destruction of the wall of the blood-vessel by the process of ulceration; and (2) by diapedesis from capillaries, owing to the intensity of the inflammatory process. In the former case it is obvious that if thrombosis precede ulcerative separation of the vessel wall, hemorrhage will not occur, so that the absence of blood from the stools does not exclude dysentery; and this was found more than once to be the case. To the naked eye the slime is tenacious, rather gelatinous material, translucent or but slightly opaque, whitish, or when blood is mixed reddish in color. Under the microscope it is seen to consist almost entirely of leucocytes with a small amount of mucoid material, which partly consists of mucus and partly of disintegrated leucocytes. For the most part the leucocytes are the ordinary polymorphonuclear type, the cell *par excellence* of the blood, and hence of the early inflammatory stage. Besides these, there are specimens of the large mononuclear "macrophage" cell in varying numbers, especially in cases of more than a few days' duration; in sections of the inflamed tissue they are sometimes a striking factor, and may be mistaken by unpracticed observers for amebæ. Another noteworthy point is the remarkable absence of bacteria in a fresh typical stool; when, however, fecal material is present, the field teems with many sorts of fecal bacteria. It was not, however, possible to identify any organism as constantly present, though suspicion attached to some small micrococci.

When the slime is dissolved by warming with a little weak alkali and then tested with acetic acid, the amount of mucin is very small, confirming the evidence of the microscope. The abundance of leucocytes in the evacuations was not found to coincide with any actual leucocytosis in the systemic circulation.

With regard to seasonal prevalence the conclusions of these observers are entirely negative. During the course of their inquiry they often met with cases in which dysenteric lesions were combined with those of tuberculosis. Though during life it may be extremely difficult to distinguish the two conditions, they should not elude differentiation at

autopsy from the absence of anything tuberculous in their character.

For various reasons it was only possible to make very limited investigations into the etiology of the disease. In all cases where any bacteria grew in cultivations made from organs or blood, the cultures were never pure, but consisted of two or more kinds. This was true also of the organs and blood of animals naturally or artificially affected with dysenteric material. Cats inoculated by enema with feces from dysenteric patients died at varying periods after inoculations, showing either inflammatory or ulcerative changes in the colon. Of two cats put to live with infected ones, both had diarrhea on and off; one was killed, and had a few hemorrhagic patches in its colon, the other was found to have many tapeworms. In two other cats, both had diarrhea after being given a number of gnats taken in the subways of Claybury Asylum in a sterilized bottle. One died and had some congestion of the colon, but this was again complicated by the presence of tapeworms. Two cats were given broth, cultures from which contained no ordinary bacteria, but only the minute coccus-like bodies that had come under suspicion. One died after three months, and had a patchy congested condition in its colon. The other was killed as it began passing blood and slime motions; the colon had not become ulcerated.

The observers pass on to consider the various factors which might contribute to the spread and appearance of infective diseases within the asylums. As to conveyance through the air, after careful examination of the local conditions, they could not elicit any positive evidence of its occurrence. Likewise the water was exonerated; indeed, if such had been the mode of conveyance the incidence on certain parts of the asylum to the exclusion of other parts could hardly have been possible. The same conclusion was arrived at in the matter of milk and other foods.

The observers had further under consideration the whole question of the sanitary arrangements of the asylums. First, as to unsound and otherwise imperfect drains and drainage: they condemn the amateur systems of sewage treatment that prevail on some asylum premises, although they have been unable to trace a direct influence on the occurrence and spread of dysentery. At Claybury Asylum, for instance, vegetable produce, such as salad and celery, both of which are eaten uncooked, are irrigated with raw and untreated sewage. An examination of the effluent at a time when it had just been poured over a bed of lettuces showed not only that every cubic centimeter contained more than one and a half million bacteria, but that abundant unaltered feces were also present, suggesting that most of the bacteria were of fecal origin.

The next note is on the want of cleanly surroundings within the buildings. Under this head they call attention to the mode of "cleaning" and treating mattresses which have been fouled by dirty patients. The mode of treating such mattresses is to scrub them on the floor with a minimum of soap and water; after a short period of drying, and whilst moist, they are placed in a warm chamber, favorable to the growth of bacteria. Investigation served to show that the number of organisms in a cleaned mattress was considerably in excess of one about to undergo the "cleaning process." It is obvious that the mattresses form a means of carrying disease germs within them, and as they are transferred from patient to patient, of conveying the disease from the unhealthy to the healthy.

Some observations follow on imperfectly regulated personal cleanliness. Under any system it is next to impossible to keep a population of lunatics in an ideal state of personal cleanliness; but apart from this a hard and fast régime was found to exist in many asylums that discouraged a frequent resort to the bath and towel. The matter seemed to be of special importance, inasmuch as patients were liable to be employed in assisting to cleanse a dirty patient.

There are some strong animadversions on the general state of overcrowding of the wards of the asylums. It is beyond question that the conditions which result from the close congregation of a number of individuals favor the appearance and spread of dysentery. Actually many of the most overcrowded wards were found comparatively free from dysentery; this only shows that dysentery is not spontaneously caused or fostered by the overcrowding. Overcrowding must, however, tend to a lowering of the general health, but in order that dysentery should appear it is necessary that the specific agent should be introduced. Even given the actual amount of cubic space requisite per individual, the very magnitude of some of the wards, accommodating over one hundred patients, acts in the same manner as overcrowding in favoring the spread

of the disease from patient to patient. Given that a case of dysentery harbors a specific infective agent, it becomes a focus whence that agent may spread to other individuals, and would therefore be a source of danger until removed to other surroundings. The risk of transference is, however, slight in the presence of certain precautions: first, the control of trained nurses; secondly, proper air-space and surroundings; and thirdly, proper disposal of material which may carry infection. These conditions were not present in the ordinary wards of the asylums visited. At the same time either no provision or quite inadequate provision existed for the isolation of infectious cases, and for the disinfection of contaminated articles.

The report of these observers concludes with a list of recommendations, which contain the pith of the inquiry, and are of such importance that I quote them *in extenso:*

1. They do not anticipate that dysentery will be stamped out from the asylums unless serious and strenuous endeavors are made to improve the sanitary surroundings of the inmates (including the supply of sufficient air-spaces and less aggregation of insanitary individuals), and unless careful and persevering steps are taken to see that the elements of hygiene are practically enforced.

2. Mere half-hearted measures, such as an apparent isolation for a few days or a week or two, followed by transference to an uninfected ward, are not calculated to do more than keep the disease extant.

3. In all cases the accommodation designed or provided for isolation purposes should not be misused for other purposes. It is advisable to remove and isolate those affected with dysentery or a suspicious diarrhea from the proximity of the healthy.

4. Every endeavor should be made to relieve existing excess of population which is over and above the proper capacity of the various wards of asylums.

5. No plans for increased accommodation should be passed, the construction of which will interfere with the access of light and air of new or preexisting buildings.

6. Systematic notification of all cases should continue according to the prescribed form.

7. It would be preferable for all beds and side rooms to be numbered, so that the position of any given patient could be detected; in the event of such numbering being carried out, the numbers would form part of the notified information.

8. Also in cases of protracted or intermittent diarrhea and of dysentery, records should be kept on some such chart-form as that introduced; and inasmuch as attacks of this nature have little or no connection with the mental or legal status of the patient, it would be well that they should be filed together and thus in time form a valuable record, especially if the charts are kept up and filled in the same careful manner as some have already been.

9. The reports and charts should be conveyed to the pathologist through the central office.

10. While the transference of patients from ward to ward is desirable and necessary for purposes of treatment and administration, great discretion is necessary when diarrhea, however slight, occurs.

11. When cases which have been more or less isolated on account of dysenteric disease are returned to the wards after recovery, they should not be introduced into those wards which have apparently been free from diarrheal disease; for the actual recovery, or rather the point at which an affected person is truly rid of contamination, is not at all clear. Several patients have suffered from relapses after removal to wards with fairly "clean bills of health."

12. The fact that patients are occasionally admitted with chronic or intermittent diarrhea makes it necessary that careful observation should be paid to new patients in this respect, in order that proper precautions may be taken without undue delay.

13. In filling up new asylums every precaution should be taken to avoid the introduction of patients who have recently suffered with dysentery, as they may become foci of the disease, owing to the fact that relapses may occur in cases which have recovered.

14. Greater facilities for attention and supervision should be given to the personal cleanliness of the patients; the present arrangements and regulations leave much to be desired. The following points are therefore suggested:

All able patients should be made to wash their hands before each meal.

All patients who might assist in laying out meals should be seen to cleanse their hands satisfactorily before being allowed to handle eatables.

All patients who may be called on to assist in ward duties (especially cleansing and changing of other patients) should be seen to cleanse their hands in a sufficient manner.

Clean and neat lavatories should be supplied and used.

15. Systematic disinfection of all things used by, or which have come in contact with, patients affected even with slight diarrhea only should be carefully and promptly carried out.

16. Contaminated or possibly contaminated objects should be placed in covered receptacles in convenient situations; they should only be moved from the ward in these receptacles, wherein they should remain until disinfection is carried out. The receptacle (such as a galvanized covered vessel) should itself be subjected to disinfection before it is returned to the ward.

17. Some supervision appears occasionally necessary to see that apparatus supplied is not misused by ignorant or lazy attendants (such as sending a patient to wash his hands at a slop-sink or cleansing mackintoshes in a bath. Mackintoshes are rather difficult to deal with; efficiently strong coal-tar-derived disinfectants have deleterious action upon them; it would be preferable to do away with them if a cheap substitute, which could be destroyed after use, could be found.

18. All mattresses in use should be subjected to disinfection (with steam under pressure) at stated intervals; in the asylums where they have been shown to be in a very polluted condition a systematic disinfection should be carried out as soon as possible. The experience at the fever hospitals is that such disinfection is not injurious to the materials.

19. One or more wards (preferably an isolation block) should be used for the reception and treatment of patients suffering from dysentery or chronic diarrhea. They should be retained there for a given period after the cessation of the trouble (this period cannot be fixed at present, but we would suggest as a minimum fourteen days or longer in severe cases); and when they return to their proper wards they should be kept on light and more digestible forms of diet for another similar period, on account of the liability of indigestible forms of food to cause a fresh return of the trouble, if not to make it chronic or intractable. During such time linen, etc., used by them should be considered "infected," and should be submitted to disinfection. No patient should be allowed to occupy a bed previously used by a patient taken with dysentery or diarrhea except all the furniture thereof has been removed and disinfected, whether apparently clean or not.

20. It would be preferable for one or more of the attendants in charge of patients isolated for dysentery (or other maladies, such as typhoid fever) to be chosen for their trustworthiness and experience in the methods of fever-nursing and the sanitary practices connected therewith. In connection with this we think that it would probably enhance the status and usefulness of the attendants if lectures or classes on elementary principles and the practice of hygiene were instituted.

21. In respect to the appliances, etc., in the asylums, there is not much to say except that Claybury Asylum cannot be considered in a satisfactory sanitary condition until the whole drainage system has been subjected to severe tests and remedied where necessary.

22. Draws attention to the bad heating system of one asylum.

23. Remarks on the horrible contamination of water-supply at some asylums.

24. In regard to the diet of patients, it is decidedly better than the majority of them obtain outside.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Intrarachidian injections of cocaine have been used in France as a means of suppressing pain during parturition, and Dr. Doléris, accoucheur of the Boucicaut Hospital, has tried it in his service in about sixty cases. The only disadvantages that he had noticed were the headache which took place in sixty per cent of the cases, and especially with stout and nervous women, and the vomiting which was noticed in all cases. (The writer has just seen an operation carried out by Dr. Tuffier at the Beaujon Hospital with intrarachidian injections of cocaine. The patient was an old woman having a cyst of the ovary. The patient kept trying to vomit during the operation, and Dr. Tuffier made the remark that during the last two weeks this had been noticeable, and must be due to some impurity of the cocaine used.) Dr. Doléris had found that the use of these injections produced the following results: analgesia during parturition, lasting about three hours; a favorable modification of the contraction; hemostasis; and lastly, it could be used to perform such an operation as Cæsarian section. In cases of albuminuria no untoward effects had been noticed.

A Russian physician, Dr. Toffé, has been recommending a new treatment of malignant

pustule, which consists, after cauterization of the ulceration, in covering the inflamed surface with a dressing dipped in a solution of one part of ichthyol to three of glycerin. This dressing should be changed once or twice in twenty-four hours. After two or three days the disease would seem to be stopped completely, and the use of boric acid vaselin suffices to obtain complete cicatrization. Dr. Toffé has found this better than hypodermic injections of a solution of carbolic acid or dressings dipped in Van Swieten's solution.

Dr. Bourget, of Lausanne, described his treatment for perityphlitis at a recent meeting of the Society of Therapeutics. The diet administered should be very light, consisting of thin soups made with oats, rice, or eggs. Every day a dose of twenty grammes of castor oil, containing one gramme of salacetol, should be administered, or else small doses of castor oil, one or two grammes in capsules (five to ten a day). If there is much gastric disturbance, the stomach should be washed out with a one-per-cent solution of bicarbonate of soda. The intestine should be irrigated with a solution of ichthyol (4 per 1000) at a temperature of 38° C. A little oil should also be administered at the same time. Cataplasms are to be applied on the ileocæcal region, or even leeching resorted to. After two or three days of this treatment saline purgatives are given instead of the castor oil. Dr. Bourget's treatment would seem to be a sort of revival of the old methods used before operations were carried out so indiscriminately in the treatment of all forms of appendicitis or perityphlitis. At the same meeting Dr. Schmitt spoke of a case of tuberculous peritonitis which was in a bad way, and where a cure was obtained by the use of cacodylate of soda and enemata containing a saturated solution of sulphide of carbon.

Salol has been tried recently in Germany for the treatment of glycosuria. Professor Ebstein, of Göttingen, has already called the attention of the medical world to the results obtained by its use; and Dr. Tesmacher, of Neuenahr, has also tried it and has found that under its influence the quantity of sugar excreted diminishes notably. Dr. Tesmacher gave salol five consecutive days in doses of twenty grains three times a day. Out of eight cases treated in this manner three remained in the same condition. With the five other patients there was so pronounced a result that there did not seem to be hardly any sugar left in their urine. The effect produced is not lasting, however.

Dr. Hallopeau, the well known skin specialist of the St. Louis Hospital, has been investigating the results of chrysophanic acid in the treatment of psoriasis. He had a solution of this acid in traumaticine applied on the left side of the body of the patient, whereas on the right side they simply used traumaticine. The result obtained was the same on both sides. Dr. Brocq remarked that he obtained similar results when he had tried the treatment on one side only. Somewhat later during the proceedings of the Society of Dermatology, Dr. Brocq drew the attention of his colleagues to an accident which happened in his service to a patient who had received an injection of a solution of biniodide of mercury. When the third injection was made the patient experienced much pain, and the gluteal region, where the injection had been made, became swollen. Gangrene set in, and a large piece of flesh came away. Dr. Brocq said he thought this disaster must have been brought about by an injury to the sciatic nerve. He added that he did not wish to pose as an adversary of injections, but he could not help asking himself if it would not be better to use them only in exceptional cases, and employ for simple cases the treatment by the mouth or by inunctions. Dr. Hallopeau said he agreed with Dr. Brocq's conclusions.

Dr. Babinski has been trying a new treatment for exophthalmic goitre, which consists in the administration of salicylate of sodium. At a recent meeting of the Society of Neurology he described the results he had obtained with three patients. A young woman, twenty-eight years old, began to show the first symptoms of the affection in 1898. In February, 1899, on examination the following condition was noted: a well marked pulsating goitre, very apparent exophthalmia on both sides, trembling of the arms, and a pulse beating at 140 a minute. There was also loss of weight and great weakness. The treatment by salicylate of sodium was recommended and carried on for several months with interruptions. In October the young woman's condition had changed notably. The pulse was at 80, the goitre and tremor had disappeared, the exophthalmia had diminished, and there was an increase in weight of several pounds. Late last year Dr. Babinski saw his patient again, and the exophthalmia had completely disappeared.

In another case, a man forty-one years old,

there was exophthalmia, tremor, and rapid pulse. Less than a month after the treatment had been started, the tachycardia had disappeared. In January, 1901, the exophthalmia on the left side had completely disappeared, and the pulse had come down to 80. A third patient had a pulsating goitre which disappeared after a month's treatment.

Professor Mathieu, who is perhaps the most reliable specialist in stomach affections in France, has been trying a new treatment in intestinal hemorrhages during typhoid fever. Dr. Tripier had already tried hot water enemata, but Dr. Mathieu thought it well to add the use of chloride of calcium. The treatment carried out was as follows: Complete immobilization of the patient (no cold baths, which are replaced by the cold pack); inertia of the intestine (opium, abstinence from liquids and solid food); every morning an enema of a quart of water at a temperature of 46° C., and given with little pressure. This enema should contain from three to four grammes of chloride of calcium. One to three grammes of the same drug should be given by the mouth. Dr. Mathieu said he does not consider it necessary to give more of this drug, as when ten to twelve grammes is administered the coagulative property of the blood is diminished thereby. This treatment was followed out in eight cases and gave most excellent results. Dr. Mathieu remarked that enemata were beneficial in such cases, because they removed the blood which might become putrefied. He found that the best intestinal disinfectant was subnitrate of bismuth in doses of five grammes repeated three times a day. Dr. Robin says this antiseptic is less irritating than naphthol.

At the last meeting of the National Society of Medicine of Lyons Dr. Jaboulay spoke of two cases of cancer which had been treated by quinine. Fifteen grains of quinine was given daily five days of the week, the other two days Fowler's solution being administered. In one case there was a foul-smelling ulceration which was much improved by the use of a vaselin ointment containing ten per cent of quinine. The swelling of the arm seen in one case of cancer of the breast diminished notably and allowed the movements to be more easy. The pain was also in a measure relieved.

At a meeting held by the Society of Surgery on April 24 Dr. Kirmisson, surgeon of the Trousseau Hospital, who has just been named Professor of Infantile Surgery, showed his colleagues a boy eleven years old, who began suffering from Pott's disease at the age of four, and was operated upon when he was six. Forced extension was carried out, as well as excision of the spinal processes. The surgeon who performed this operation was obliged to keep the child three years under treatment, and of late a pupil of the same man was obliged to keep on applying plaster-of-Paris corsets. Dr. Kirmisson called the attention of the society to the fact that the vertebral column had sunk down and the gibbosity was such that the patient had some difficulty in breathing.

Dr. Henry Napias, the director of the Assistance Publique in Paris, the organization which has charge of the hospitals, has just died. He had been a navy surgeon, then editor of *République Française*, Gambetta's newspaper. He was well versed in hygiene, a subject on which he published a book called the Manual of Industrial Hygiene.

Dr. Brocq, who is the leading specialist in France on skin affections, has been publishing an article in the *Presse Médicale* on the treatment of syphilis by the use of mercury taken internally by the mouth. He says that the method of subcutaneous injections has become quite familiar to most physicians, as well as that by inunctions, and on the other hand the older methods seem to have been put aside on account of the uncertainty of giving full doses when administering pills, and of the deleterious influence they often exert on the gastric functions. He either gives the drug in one dose before breakfast, or in two portions given before the two principal meals. It is, however, his usual habit to give it in small doses four or six different times during the day. Dr. Brocq finds that the irritating action on the stomach is in this manner in great part suppressed; in case of any colic a small dose of paregoric is quite sufficient to remove all such symptoms of intolerance. He considers this method wellnigh as accurate as that of injections. As for its efficacy, it seems to be as great; very few syphilitic lesions appear to require any other treatment, with the exception of psoriasiform syphilides of the hands and feet, or syphilomata of the tongue, where injections of calomel are requisite. Dr. Brocq ends his article on the subject by saying that in his service only about one-tenth of the syphilitic patients are treated by inunctions or injections, and that he considers it expedient as a general practice to administer mercury by the mouth.

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THE ACTION OF ANTITOXIN.

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During the early period of serum therapy, the novelty of the subject and the peculiarity of serum manufacture made a certain cautious hesitation in the use of the antitoxin quite justifiable. During the seven years which have elapsed, however, the knowledge of the subject has grown so enormously, its limitations have become so clearly defined, and the nature of the toxin-antitoxin reaction so elucidated, that skepticism can have no further basis than ignorance upon which to fall back.

The speakers who preceded me this evening have so thoroughly covered the etiology, symptomatology, pathology, and treatment of diphtheria that I feel it would only be a trespass upon your time should I append anything to their already extended remarks, and during the time allotted to me I beg to call your attention to some facts, by themselves of little interest to the practical man, which have been published, for the most part, in journals not commonly read by practitioners.

The protective substance or power that is known to us as antitoxin is of phenomenal occurrence. Small quantities may possibly occur in the blood and tissue juices of a few

normal animals both in natural and acquired immunity, but it is difficult to demonstrate its presence except in the entirely abnormal condition known as "forced immunization." By this term I refer to an exaltation of immunity which results from the gradual progressive administration of a poison until the resisting power of the animal has risen to one hundred or more times that which could possibly have occurred in nature.

Thus, a susceptible animal suffers from tetanus and recovers by acquiring resistance to as much toxin as the tetanus bacilli have formed in its body—presumably somewhat less than would have caused death. If this resistance depends upon the presence of antitoxin, the total quantity produced is not much more than will neutralize the effect of the fatal dose, and small quantities of the animal's blood if examined reveal the presence either of no antitoxin or of almost inappreciable quantities. If after this recovery the experimenter take the animal in hand and inject beneath its skin what is estimated to be a fatal dose, then somewhat more than a fatal dose, then two, three, five, ten fatal doses, and so on until say one hundred fatal doses have been administered, the resisting power of the animal is each time increased, and with this increase of resistance there is a more or less marked increase of antitoxin, until after the enormous doses that characterize the end stage of the treatment, it appears in large quantity.

The best explanation of the phenomenon has been offered by Ehrlich[1] in what is known as the "lateral chain theory." Briefly stated, this theory teaches that in certain cells of the body for which the toxin has a definite affinity—tetanus toxin for the motor nerve cells, etc.—there are molecular elements, described as "haptophorus," which readily combine with it. It is the ability of these molecules to effect a combination with the haptophorous or combining elements in the toxin that secures the primary resisting power of the animal. The combination is succeeded by a regeneration of the haptophorous substance of the cell in a quantity slightly in excess of the normal, possibly, the result of the original stimulation. If the stimulation is often repeated, and in consequence much of the haptophorous substance (Ehrlich views the haptophorous substance as a lateral chain of molecules) is needed, it is formed in superabundance and discharged into the blood, which as a result appears charged with combining (antitoxic) substance.

Ehrlich and his followers base their entire theory of immunity and antitoxins upon the existence of such lateral chains, and Wassermann[11] has shown that in certain cases artificially prepared haptophorous substance may protect the animal as perfectly as that naturally formed. Thus, he found that if some of the central nervous tissue of a guinea-pig be crushed with tetanus toxin, its haptophorous substance at once formed a union with it by which the toxin became harmless when introduced into a guinea-pig, and that if the comminuted nervous tissue which contained the haptophorous substance was injected into an animal which was subsequently injected with tetanus toxin, enough of the haptophorous substance remained in the blood to annul its effects. There is an apparent paradox in a small quantity of nervous substance affording protection to an animal with its whole nervous system intact, but the explanation seems to be that the normal nervous structures furnish only some of their substance as lateral chains for combination, while the comminuted nervous substance, having no longer any physiological function to perform, yields all of its substance for combination. That the antitoxin which appears in the blood is a new substance and one depending entirely upon the process of immunization is amply shown by the facts that it is not present in the normal animal, that it increases up to a certain point during immunization, and is speedily eliminated and disappears when the stimulation depending upon the toxin injections is discontinued.

The formation of antitoxin, while it leads to a physiologically unusual condition, can scarcely be described as a pathological process or condition. The animal is in every way in perfect health, and it is rather an exaltation of an already existing normal condition than the production of a new morbid one.

From the foregoing it may therefore be inferred that *the production of antitoxin is a reaction of immunity.* It will be shown and emphasized that *it is only one of many reactive phenomena manifested by animals in response to vital stimulation.*

The data upon which this conclusion is based have been obtained through experiments directed toward the determination of the toxin-antitoxin reaction or interaction.

How does antitoxin act? There are two theories regarding this. The first, which has met most support at the hands of French investigators, is that the antitoxin stimulates a vital change in the body cells, particularly the leucocytes, by which they become unusually resistant to the influences of toxins, endure their presence without injury, and, as far as the leucocytes are concerned, destroy them by the generation in their cytoplasm of neutralizing substances. Roux and his followers have always stoutly supported this view, and Calmette[2] has offered what seems like excellent evidence in its favor.

The second theory, which is championed by the Germans and English, is that the interaction of the toxin and antitoxin is a purely chemical one in which the animal is entirely passive, that which takes place in its body being identical with what occurs when the two substances are mixed in a test-tube. This view naturally suggests itself when we consider that when toxin and antitoxin are mixed *in vitro,* the effects of the former are neutralized or annulled; and the law of multiples discovered by Behring, that any given number of fatal doses of the toxin would be annulled in action by the proper relative proportion of antitoxin, seems to confirm it. There is, however, no logical reason why, if the action is vital, enough vital stimulation effected by enough antitoxin should not be capable of overcoming the action of any given quantity of toxin.

Calmette[2] offered this proof that the action was not chemical. He mixed cobra venom and its antitoxin, *antivenene,* in a test-tube; then heated the mixture to a temperature at which the antitoxin was destroyed by coagulation, though the venom remained unchanged. If the reaction between the toxin and antitoxin were a chemical one, this heated mixture should be innocuous, but as a matter of fact, when the antitoxin is precipitated by heat, the activity of the venom returns. This Calmette believed proved the reaction to be vital, not chemical. Martin and Cherry,[3] however, upset his calculations by showing that if the mixture of venom and antivenene were permitted to stand at 37° C. for twenty minutes before being heated, the activity of the venom did not return after heating the mixture, and so proved that the reaction is chemical and required a certain length of time and a certain temperature for its completion. They also constructed a physical apparatus in the form of a gelatin-covered porcelain filter which was pervious to the molecules of toxin, but not pervious to those of the antitoxic serum. Unless a chemical reaction occurred between the toxin and antitoxin, when a mixture of the two is filtered, the unchanged toxin should pass through and destroy animals as the unmixed venom would. They found, however, that the filtrate was harmless.

Most interesting test-tube experiments were later developed to show that the "antiserums," while they may possibly exert some vital action, certainly act chemically. Thus, Ehrlich[4] found that ricin had the power to agglutinate red blood-corpuscles, but that this test-tube reaction is entirely suspended by the presence of a few drops of anti-ricin.

The poisonous blood of eels, serpents, and toads, an active substance produced by the tetanus bacillus and known as tetanolysin,[12] one of the active elements of cobra venom, and substances found in the venoms of other serpents, all have the power of laking blood—*i. e.,* of dissolving the hemoglobin out of the red corpuscles when applied to diluted defibrinated blood, in dilute solution, but the addition to any of the mixtures of a proper proportion of the serum of an animal immunized to the respective hemolytic substance immediately checks the process, and not only can it be inhibited, but the progress of the hemolysis can be checked at any moment at which the proper proportion of serum is added.

The experiments of Ehrlich and Morgenroth,[4] Metschnikoff,[5] von Düngern,[6] Bordet,[7] Myers,[8] Stevens and Myers,[9] and others who have investigated these phenomena, are of the greatest interest.

The reactions, however, do not cease here, but extend to the field of enzymes. Morgenroth[10] has found that the curdling ferment or rennet, when injected into animals, leads to the formation of an antirennin, by which the activity of rennet upon milk can be checked, the reaction taking place in readily calculable proportions.

Bordet and Gengou[7] have experimented with fibrin ferment and have succeeded in producing an "anticoaguline"—*i. e.,* a serum which prevents coagulation of blood to which it is added—by injecting animals with blood and fluids rich in the fibrin ferment. This reaction also is subject to control in fixed proportions.

It is even possible, if the observations of Metschnikoff are correct, to alter the physiological equilibrium of the body by the introduction of its tissue elements in abnormal condition, so that lysins, or solvents, for the respective injected tissue elements are generated.

This is perhaps best shown in the experiments of Ehrlich and Morgenroth and von Düngern, who found that a few injections of the blood of one animal into another animal conferred upon its serum the property of rapidly destroying the corpuscles of the animal injected, not only *in corpore,* but also *in vitro,* and that this action was specific, depending upon the presence of (1) an immune body, and (2) complementary bodies in the serum.

The lesson to be learned from these facts is very obvious in the practical application of immune serums to the treatment of disease. Remembering that the reaction upon which recovery depends partakes so largely of a chemical nature, and that it occurs only in definite proportions, no latitude is given for personal opinion regarding dosage. The doses given should always be large, and in excess of the quantity probably required.

In practice we are not working with test-tubes, nor can we in any way calculate, even approximately, how much toxin formed and to be formed in the patient's throat we are to neutralize by the injection of antitoxin. *Always give the maximum dose.* If it be too much, very little harm can possibly result, but if it be too little, it may afterward be too late for successful interference.

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*THE TREATMENT OF DIPHTHERIA OTHER THAN WITH ANTITOXIN.**

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With the advance in the use of antitoxin for diphtheria the discussion of other methods of treatment receives constantly less attention in our text-books and journals. In fact, much of the advocacy of the use of drugs has become really only ancient history, and any attempt in this connection at a review of it all would be not only wearisome but useless. In the present state of our knowledge, however, we would err greatly in putting sole dependence on any one line of treatment, valuable though this might be; and we may well consider some of the methods, hygienic and medicinal, upon which we can most depend as an aid to the action of diphtheria antitoxin.

A. Prophylaxis.—Since the disease is an exceedingly contagious one, and one whose germs have a remarkable vitality, every effort must be made to prevent the spread from the sick to the well. Thorough isolation of those affected is, of course, important, as is the careful disinfection of everything which has been in proximity with the patient. Not only so, but individuals in any way concerned in the nursing of patients with diphtheria must come as little as possible into contact with others, since, without having the disease themselves, they may readily convey it. Children of the family should be taken from the house whenever possible, and, further, themselves quarantined for a time—ten to fourteen days—lest they carry it to others. It is a matter of repeated observation that the germ of the disease can often be found in the throat of a healthy nurse caring for a case of diphtheria.

The nurse in attendance should wear, of course, wash dresses, and a cap which thoroughly covers the hair. On leaving the room for her necessary outings, she must change her dress and disinfect her hands and face. The physician must never forget that he can himself readily become a source of danger to his other patients. Before he enters the sick-room he should cover his clothing with a garment of rubber or linen,

*Part of a Symposium on Diphtheria read before the Philadelphia County Medical Societv.

and it is much better, too, if he can put on his head some such article as the oiled silk cap worn by women bathers at the seashore. On leaving, he should wash his hands and face with a disinfectant, such as a solution of carbolic acid or lysol.

As in all infectious diseases, the room should be carefully selected in the upper part of the house, if possible opening into another room, best a bath-room. The windows of this anteroom should be kept open as much of the time as possible. All ingress to the sick-room should be through the anteroom, and the other door of the sick-room leading into the entry should be locked, and the cracks stuffed with cotton or closed in some similar manner. It is commonly advised to hang a sheet moistened with a disinfecting fluid, such as carbolic acid or corrosive sublimate, at the door leading from the entry into the anteroom. It is questionable whether this is of real service, yet, as it may be so, it is well to have the practice enforced. All upholstered furniture, curtains, books, toys, etc., should be removed, and the carpet taken up and replaced by old rugs or strips of carpeting which may be destroyed later. Pieces of old linen should be used in place of handkerchiefs, and must be burned immediately. All the bed linen and personal linen of the patient should be soaked in a disinfectant solution in the anteroom before it is removed for washing. All excreta should be disinfected with a sublimate solution. The meals of the nurse should be carried to the door of the anteroom and there taken in by her. After using, the plates, forks, and so on, should be washed in a disinfectant, preferably carbolic acid, as bichloride will, of course, injure metal.

When the disease is over, the room should be washed with a disinfectant and then fumigated with formalin. Although this substance has but limited penetrating power, it is at least serviceable to a certain extent. Finally, the mattresses and pillows should be steamed, if this is possible, and the room repapered and painted.

For their own safety, the most careful supervision must be kept over both the throats and the noses of all members of the family, since the development often occurs of attacks so light that they would otherwise be overlooked. It is such cases which are especially liable to spread the disease abroad. Then, to prevent members of the household unavoidably exposed from contracting the affection, the systematic, frequent use of antiseptic gargles is to be recommended. For such purposes, diluted solutions of corrosive sublimate 1-to-10,000, weak carbolic acid solutions, diluted chlorine water, etc., are to be recommended; and for the nose, alkaline antiseptic sprays.

After the disease is over, the patient must still be isolated for at least three weeks from the beginning of the attack. A still better method, where cultures can be taken, is to continue isolation until the Klebs-Loeffler bacilli can no longer be found in the throat.

B. Treatment of the Attack.—The treatment of the attack itself may be divided into: (1) Hygienic and dietetic; (2) local; (3) general and constitutional.

1. Hygienic measures do not differ materially from those to be employed in other infectious diseases. The room must be kept at an even temperature of about 70°, draughts avoided, yet ventilation carefully attended to. The last is best obtained by means of a fireplace or by ventilating through the windows of the anteroom. The bedclothing and the linen of the patient should be changed frequently, as this often adds greatly to the sense of comfort. Daily ablution can be carried out in nearly all cases, with proper precautions against chilling and fatigue. Care must always be taken to avoid sudden movement of the body, either voluntary or made by the nurse, on account of the well known weakness of the heart which attends the disease. This holds good even after convalescence. In fact, even the mildest cases should be confined to bed in a recumbent position throughout the attack.

In cases giving rise to offensive exhalations, the use of deodorants in the room is of advantage, such as the burning of aromatic pastils, the employment of benzoin sprays, and the like. But it is to be remembered that the use of such measures, or of many so-called "disinfectants," in the room is valueless so far as the destruction of germs is concerned. The standing about of dishes containing chloride of lime or of soda, for instance, does no good whatever.

The diet of a patient with diphtheria should be liquid, and later semi-liquid, and always of a most nutritious nature. This is to spare both the stomach and in many cases the kidneys, involved, as they often are, by inflammatory conditions. The patient should be fed as far as possible at regular intervals, and with definite amounts. Where the con-

dition of the pharynx makes swallowing almost impossible, rectal alimentation must be resorted to. In this event some concentrated peptonized beef preparation is very serviceable.

2. Local. Much good is to be expected from this form of treatment, but a careful selection of measures must be made. The number of procedures advised is very large. We can consider only a few.

(*a*) Nasal diphtheria. Remembering that in many cases of diphtheria the disease begins in, or is even confined to, the nose, care should be taken in every case that this region receives treatment. The solution may be applied by means of an atomizer, but for thoroughness the use of a syringe is to be preferred. To use a syringe, the patient should be recumbent, with the head well turned to one side. The fluid should be injected into the upper nostril, returning through the other nostril, or through the mouth. The head is then turned to the other side, and the second nostril treated in a similar manner. All solutions should be tepid. Spraying the nose is apparently a less disagreeable form of treatment, and yet often the resistance of a child makes it just as productive of exhaustion. In fact, the advisability of using either form of treatment must be determined for each individual case. When the procedure is well borne, the frequency of its repetition depends entirely upon the degree of involvement of the nose and nasopharynx. Even when there is apparently no nasal involvement whatever, treatment of the nose is still advisable.

The solutions to be employed should be those which check bacterial growth or act as cleansers only, rather than those distinctly bactericidal. These latter are too powerful to be well borne. In many cases mild alkaline antiseptic sprays or douches are sufficient. Solutions of boric acid are also serviceable, as are those of borax. Trypsin has been highly recommended. It may be employed in a solution of one drachm to one ounce, in alkaline water. Papoid has also won considerable reputation, best in combination with bicarbonate of soda in solution. Bichloride of mercury in the strength of 1-to-5000 is sometimes employed. Peroxide of hydrogen is very efficacious. Care should be taken, however, first, that it is active; secondly, that it is not acid; and thirdly, that it is sufficiently diluted. A brand which is but little acid should be chosen, and any excess neutralized just before use by the addition of a little bicarbonate of soda or lime water. The dilution for use in the nose should be at least 1 in 4.

(*b*) Pharyngeal diphtheria. Various solutions may be applied to the pharynx by the syringe or on a swab or brush. As with local treatment of the nose, the question of using any application must be determined by the degree of resistance offered by the patient, and the resulting exhaustion. In the septic cases applications are greatly to be desired, yet in some prostration is too great to allow of it. In others the degree of prostration prevents any forcible resistance, and applications may well be made. Every case is a rule to itself, but the main rule is *"non nocere."*

For diphtheria of the pharynx, we may well use cleansing applications followed by those having bactericidal power. A method to which I am partial is the application of a solution of peroxide of hydrogen in full strength or slightly diluted, taking the precautions already mentioned. Immediately following this, Loeffler's solution is applied on a swab and held against the affected parts for a few seconds. This solution, as often prepared by druggists, consists of a combination of menthol, toluene, creolin, solution of ferric chloride, and alcohol. The application is painful and must not be repeated too often. Another very serviceable antiseptic application is a mixture of tincture of the chloride of iron, glycerin, and water, in varying proportions. Still other favorites, and deservedly so, are a solution of bichloride of mercury 1-to-1000, a solution of carbolic acid three to five-per-cent, chlorinated soda, and chlorine water.

The application of powdered substances by insufflation is used by many physicians. For this purpose are recommended papoid, trypsin, sulphur, pepsin, and so on.

(*c*) Laryngeal diphtheria. In involvement of the larynx local treatment must be largely by inhalation. Most useful in this connection is the employment of steam, or more properly, water-vapor, since precaution must be taken that actual steam does not approach too closely to the patient lest burns result. It is also important in using this plan of treatment that enough vapor be generated. A gentle simmering of a small pan of water in a large room is of no value whatever. Either the room must be kept full of vapor by plunging red-hot iron, hot bricks, and the like, into tubs of shallow water, or the child must be surrounded by a

croup tent, and the air within it kept moist by a steam atomizer or a croup kettle. A home-made croup tent can readily be constructed by tying a broomstick upright at each corner of the crib, connecting the tops by cord, and throwing blankets over the framework thus made. A small A-shaped opening is left near the head, and the vapor conducted in through this. It is often advised to medicate the vapor with benzoin, eucalyptus, turpentine, carbolic acid, and the like. It has always seemed to me questionable whether there was any real advantage in this addition.

3. General and constitutional treatment. It is certain that there is no drug which can be called a specific for diphtheria. At the same time, the thought sometimes arises that in our interest in the specific treatment of the disease with antitoxin we may perhaps be neglecting testimony on which we formerly relied, and which was based on very extensive clinical experience, viz., that help was to be had in many cases from the administration of medicine internally. At any rate, we cannot omit in this connection referring to two remedies once popular—mercury and iron. Mercury, absorbed into the blood, was supposed to act as a solvent upon diphtheritic membrane, and at the same time to diminish the virulence of the disease. In the form of the bichloride it has been very extensively employed. It was given in large doses, one-sixtieth to one-thirtieth of a grain, every two hours, for a child of two to four years. I formerly used it extensively, and do not remember ever to have seen any bad symptoms produced by it. This was the general experience with rare exceptions. Many physicians were thoroughly convinced that it was of great benefit. Whether this was or was not an error, it is impossible to say.

The same is true of the administration of calomel, the use of which was older and even more extended. It was given in fractional doses of a grain, or even in larger amounts, every two hours, the laxative action being guarded against. Another very popular method, especially in laryngeal cases, was the administration of calomel by fumigation, fifteen or more grains being volatilized on a hot iron and conducted into the croup tent, where the child could inhale it.

Iron, especially in the form of the tincture of the chloride, was long a most popular remedy, and great reliance was placed on it by many physicians of experience and ability. It was supposed to check the rapid destruction of the red blood-corpuscles. It was given in large doses, frequently repeated.

It is possible that both mercury and iron in large doses are not without some power in the treatment of diphtheria. Although, as stated, so many physicians believe in their power, we cannot tell their real value in the absence of large statistics.

Undoubtedly of service and of great importance in diphtheria is the employment of powerful supporting treatment. First in rank comes the use of alcohol. The depression accompanying the disease is enormous, and large doses of alcohol are frequently needed, and are well borne. I do not know of any other disease of which this is more true. In severe cases it must be given boldly, and further, its use must be commenced early and the amount increased rapidly if depression is seen to be growing. Of course, as with all drugs, its effect must be watched.

Strychnine is also borne in this disease with remarkable tolerance, especially by children, and in full doses has often, I am convinced, been the means of saving life. It is particularly useful where there is an increasing lack of tone in the pulse, or other reason to dread cardiac failure. Digitalis and other heart drugs are needed frequently and are of service.

High temperature must often be reduced, but there is nothing here characteristic of diphtheria which demands special remark, except a caution against any possibly depressing measures.

Other symptoms, as well as the various complications and sequelæ, require treatment appropriate to them, but need not be considered in this connection.

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*THE PRESENT ASPECT OF THE ANTITOXIN TREATMENT OF DIPHTHERIA.**

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The verdict of the statistical inquiries of the antitoxin treatment of diphtheria of today shows little change from that of the

*Read before the Philadelphia County Medical Society, April 24, 1901.

American Pediatric Society in 3384 cases was 9.7 per cent. Here twenty-eight cases occurred in patients injected upon the first day, seventy-three and seventy-six in those injected upon the second and third day respectively. The experimental work of Ranson upon rabbits shows that paralysis may be expected after one-quarter of the minimum fatal doses of diphtheritic toxin, and can be averted only by large doses of antitoxin given within the first twenty-four hours.

Dosage.—In the first days of its administration the dose of antitoxin was small and varied from 600 units (Baginsky) to 1000 units (American Pediatric Society) for mild cases, and about 1500 or 2000 units in severe and laryngeal cases. Musser recommends small doses frequently repeated, and gives 500 to 1000 units every six hours until the symptoms are controlled. The English dose was considerably larger, and arouses our suspicions that their serum was not of the standard that it claimed to be. At all events, with their tremendous doses their results, at least at first, were uniformly less satisfactory than those obtained in America or upon the continent.

As the quality of the serum improved and tended to become more uniform, it was used with more confidence, and as it was found that larger amounts could be given with impunity, the general tendency has been to employ larger doses. The consequence of this is, that one injection given early and containing 1500 to 2000 units is usually sufficient to control the disease, and second injections are not so frequent as formerly. I think, too, that not much modification is made for age, as the greater susceptibility in young children requires a relatively larger dose. Laryngeal cases usually require 2000 to 4000 units as an initial dose. In a recent paper McCullom, of Boston, recommends a minimum initial dose of from 4000 to 6000 units, and in serious cases this is repeated at four-hour intervals until the symptoms are controlled. He seldom gives less than 20,000 units, and oftener more than 70,000.

Immunity and Quarantine.—The value of antitoxin as an immunizing agent has been well established. Biggs collected 17,516 cases, of which 129 were mildly attacked in thirty days; twenty were attacked after thirty days; and in all there were two deaths. There are no reliable statistics available to show how long this immunity lasts—indeed, the difficulty in obtaining suitable data is very great. Baginsky places this limit at three weeks. Abbott says it probably does not last longer than a few weeks at most. The dose which was originally placed at 200 to 500 units has advanced so that now from 500 to 1000 units are more frequently given.

The following experience in the Presbyterian Hospital during the past winter is of interest in this connection. In the early part of January three or four cases of diphtheria occurred in the children's department, a large circular ward. The question of preventing further cases arose, and the aid of the Clinical Laboratory was requested. A certain portion of the cases received immunizing doses of antitoxin. The writer suggested that cultures be taken from the throats, not only of the patients but of the nurses as well. This was done with the following result: Upon January 17 cultures from seventeen patients and two nurses showed Klebs-Loeffler bacilli in five patients and one nurse. No more cases developed, and upon January 26 cultures were taken from four nurses and ten patients; three of the nurses showed pure cultures of Klebs-Loeffler bacilli, and three patients the presence of the bacilli in good numbers. At no time was there any evidence in these cases of the clinical presence of diphtheria. This was a striking example of the well known fact that the Klebs-Loeffler bacillus may exist in apparently healthy throats. It has been frequently shown that bacilli may exist for long periods in the throat of convalescents. Thus the average duration in the experience of the bacteriological laboratory of the Philadelphia Board of Health was twenty-nine days from the time of their first observation, with a maximum of 112 days. In the bacteriological laboratory of the Denver Board of Health the average was twenty-two days and the maximum 145 days. The lesson that it seems to me should be drawn from these facts is:

In preventing the spread of diphtheria in any collection of individuals who have been exposed to the disease, the immunizing power of the diphtheritic antitoxin should always be employed, with the additional measure of isolation, and the frequent bacteriological examination of the throats until the absence of the Klebs-Loeffler bacillus in all is definitely proven. The reason for this is that in some cases it is very probable that the virulence of the bacilli in the throat may outlast the duration of the immunity given

by the antitoxin. It is doubtful whether the simple establishment of immunity by antitoxin would be sufficient in many cases to stamp out the epidemic, and thus the employment of these other two measures, particularly isolation.

A successful clinical remedy to rid the throat of diphtheria bacilli is that suggested by Hand, namely, swabbing on three successive days by a fresh solution of silver nitrate of the strength of one drachm to one ounce.

A comparison of the statistics of the four principal cities of the United States is as follows: In Chicago the death-rate from diphtheria per 100,000 of the population for the ten years 1886 to 1894 was 12; from 1896 to 1898, 5.2. The year 1895 was a transition period and cannot be fairly included on either side. In the period from October, 1895, to February, 1898, 4071 cases were treated by the city with antitoxin, with a death-rate of 6.5 per cent. In New York the deaths from diphtheria per 100,000 of population, from 1886 to 1894, was 15.1; 1896 to 1898, 7.1. The death-rate of reported cases of the disease in 1890 was 25.9 per cent; in 1896 it was 15.2 per cent. The health inspectors in 1896 treated 1172 cases with a death-rate of 10 per cent.

In Boston, deaths per 100,000 of population were: 1886 to 1894, 11.8; 1896 to 1898, 10.9. In the South Department of the Boston City Hospital up to 1899, 7657 cases had been treated, with a death-rate of 12.9 per cent.

In Philadelphia, deaths per 100,000 of population were: 1886 to 1894, 10.1; 1896 to 1898, 10.7. The average death-rate of reported cases: 1890 to 1894, 29.68 per cent; 1896 to 1900, 23.6 per cent. The number of cases treated in the Municipal Hospital was: 1896 to 1899, 3985; death-rate, 24.3 per cent; previous death-rate in 1892 to 1894, 25.06 per cent. There have been comparatively few cases treated by the health inspectors.

While in the preantitoxin period Philadelphia's deaths from diphtheria per 100,000 were less than in the other cities, the rate has slightly increased under the antitoxin treatment. We appear at a disadvantage, moreover, in the percentage of deaths to reported cases, and show a fall from 29 to 23.6 per cent only. The figures of 1900, however, show a death-rate of 17.19 per cent. This is a decided improvement and gives hopes for the future. Again, we lack the organized corps of inspectors whose duty it might be to give the antitoxin gratuitously. The brilliant results obtained in New York and Chicago from such an arrangement should be an incentive for our municipal authorities to do likewise.

When the returns of the cases to which antitoxin has been administered is published, Philadelphia will doubtless bear favorable comparison with the other cities of the country.

But when all this is said the fact remains that the general city death-rate from the disease is not as satisfactory as it should be. With our facilities for diagnosis in our city bacteriological laboratory and our reputation as a medical center one must feel chagrined that our profession as a whole have apparently not employed the antitoxin treatment with the confidence and energy that are necessary to bring out its life-saving power.

The unfavorable comparison that must be drawn when the statistics of the Municipal Hospital are brought side by side with other hospital death-rates may be accounted for in several ways. Of course, hospital figures are always worse than those of private practice for reasons given above, but our average death-rate of twenty-five per cent is higher than those of other similar institutions here or abroad. In one report of the Municipal Hospital (1896) the statement is made that a number of cases were included in the diphtheria death-rate that were complicated by measles or scarlet fever. In the reports of other years it is not stated whether or not this was the case. Of course. statistics that contain such mixed cases cannot be fairly compared with series of cases of uncomplicated diphtheria.

Again, in every year a certain number of patients did not receive antitoxin. These individuals, it is stated, came under two classes: (1) very mild cases, and (2) moribund cases. In most lists the latter are rightly excluded, and of course the question as to whether very mild cases should receive the remedy or not is one to be decided by the authorities in charge; but if they were included the death-rate would of course be somewhat lower, and lists from which these favorable cases are excluded cannot be used with fairness in determining the value of the antitoxin treatment.

*A CASE OF TEA-INTOXICATION WITH SPINAL SYMPTOMS.**

By Alfred Gordon, M.D.,
Assistant in Neurology, Jefferson Medical College.

Mrs. A. B., married, thirty-one years of age; pedler by occupation. Her father enjoys good health and is seventy-eight years of age. Mother is sixty-eight years old, but always ill. One sister of thirty-nine is also constantly ill. One brother of twenty-nine is in good health. Mother had several miscarriages.

Personal history: Was operated upon seven years ago for a tumor of the uterus, and since then has not menstruated. Eight months later she began to suffer with pain and stiffness in lower limbs. Before the operation she used to drink about ten cups of tea daily, but for the past two years drank about forty-five large glasses (360 ounces) a day. The tea was always black, and extremely strong; sometimes she drank it in infusion, but most of the time in decoction. She has been a pedler for the past three years, and is constantly exposed to cold. When she had no means to buy goods, she used to do any other work she could procure, which most of the time was very hard. For the last ten years she has complained of weak eyesight, which has become still weaker during the past three years, so that she was compelled to wear glasses.

The symptoms the patient presented three months ago when she was first examined could be divided into two groups: symptoms of combined sclerosis, and symptoms of functional disturbances. The symptoms of combined sclerosis consisted in ataxia of the legs and arms, Romberg's sign, dull pain in the lower limbs, and also sensation of numbness in the thighs. There was no girdle sensation. She had a sense of fatigue in her limbs, and on the slightest exertion became very tired. There was unsteadiness in walking and slight rigidity in lower extremities, but none in upper. She had very much exaggerated knee-, wrist-, and elbow-jerks, which were more marked on the right side than on the left. At each stroke of the patellar, biceps, or triceps tendons a pronounced reflex was followed by repeated clonic movements of legs and forearms—what might be called a knee-, wrist-, and elbow-clonus. Bechterew's reflex was exaggerated on both sides, but more marked on the right side. Babinski's sign was absent on both sides. The sphincters were involved: frequent and imperative micturition and constipation were very marked.

The examination for sensations gave the following results: Thermal sensation was normal all over the body. Tactile sensation was preserved in the lower extremities, hands, and lower two-thirds of forearms; above this up to the shoulder patient could not distinguish a blunt instrument from a sharp one. Sensations to pain were different in the lower and upper extremities: in the first we noticed hyperesthesia, in the last hypoesthesia, more marked on the right than on the left side; it was the same with the face; the right halves of the tongue and pharynx were much less sensitive to pain than the left. The same disturbance was found on the chest.

The eye examination gave the following results: Pupils unequal, right larger than left; right reacted very sluggishly to light; left pupilary reaction normal. Nystagmus present in both eyes; left internal rectus muscle paretic. She had a high error of refraction, hypermetropia. Fields were taken with difficulty; she was unable to look straight before her more than half a minute. Repeated examination showed slight narrowness of the visual field for the right eye. The eye-grounds showed a slight congestion of the disks.

As far as functional disturbances are concerned, the patient was excitable, and when she became angry she fainted—to use her own expression. She did not lose consciousness, but was unable to move her arms and legs for fifteen minutes. About three weeks ago, subsequent to a fright, she suddenly became deaf. The ear examination revealed nothing abnormal. Her mental condition was perfect; memory excellent, no hallucinations, no nightmares; sleep was fairly good.

The examination of the viscera revealed nothing abnormal, except that the first sound of the heart was slightly accentuated. The patient appeared to be anemic. She has wasted a great deal within the last two years.

Under treatment in three weeks she improved considerably in regard to her functional disturbances, but the spinal symptoms remained as before the treatment.

An examination made a few days ago gave the following changes of her previous

*Case exhibited before the Philadelphia Neurological Society, April 22, 1901.

condition: Walking with closed and opened eyes was very much better, but standing with open or closed eyes remained the same. The ataxia of the arms, which was very marked at the first examination, had almost disappeared. At the beginning of the treatment we suppressed the tea entirely, and patient improved in regard to her functional disturbances; she felt stronger, was quieter, and was much less emotional. But her abstinence did not last long; she drinks now on an average fifteen glasses (120 ounces) of tea daily, and she feels as heavy on her feet as ever; also the marked rigidity noted three months ago is better now. She says that her legs are so heavy that she is compelled to ask some one to lift and put them on a chair; to go up-stairs is very difficult for her.

Summing up the case, we see that the patient presents undoubted symptoms of posterior and lateral sclerosis, except Babinski's sign and ankle-clonus, but the patient has knee-, wrist-, and elbow-clonus instead. On the other hand, the hypoesthesia on the right upper half of the body, including face, palate, and pharynx, would rather make us believe in hysteria, if in addition to it we take in consideration the fainting spells without loss of consciousness and the emotional state of the patient's character. This would go hand in hand with the hyperesthesia of the lower extremities, and even the exaggerated knee-jerk. But what is against this theory is the ataxia of the legs and nystagmus. As to the involvement of the sphincters, this could be of spinal origin as well as of a functional character. Our patient was certainly intoxicated by tea, as we can hardly admit that such an enormous amount of this beverage could leave the nervous system unharmed.

Spinal symptoms produced by tea intoxication are not reported, at least in the literature for the last five years. All reported cases have reference to cerebral symptoms. Wood (*Medical News*, 1895) reports a case where theism produced headaches, neuralgia of face and neck, attacks of vertigo, mental disquietude and confusion, forgetfulness, periods of despondency, restless sleep, nightmares, dreams, hallucinations. Cooney (*Indian Medical Record*, Calcutta, 1897) observed palpitation of the heart, headache, giddiness, mental depression, melancholia, suicidal monomania. Castle (*Cincinnati Lancet-Clinic*, 1886) experimented on himself with theine and stated that besides local loss of sensation, he had psychic disturbances, confusion of ideas, excitability, fainting spells. Thomas J. Mays (Theine in Treatment of Neuralgia, Philadelphia, 1888) has not observed symptoms of cerebral intoxication, but he did observe symptoms of anesthesia. Lehman and Tendlan (*Arch. f. Hyg.*, München, 1898) undertook a long series of experiments and stated that 20 to 40 grammes of tea produced muscular spasms, muscular fatigue, muscular restlessness and tremor, giddiness. Amblyopia was noticed in tea-intoxication by Campbell (*Lancet*, 1898). We therefore see from these few cases that there has been no mention of spinal symptoms. Shall we reject the possibility of influence of the elements of tea on the cord?

Theine and essential oils of tea are poisons to the nervous system. On the other hand, Schwann demonstrated that tannic acid will leave a precipitate from digestive elements and render them inert; atony of bowels and stomach is the result; autointoxication might follow. Cooney says that black lead is used to give a bloom to black tea. We therefore see that three sorts of poisons, if not more, take part in intoxication by tea. If other intoxications, like alcohol, lead, mercury, etc., are apt to produce spinal symptoms with involvement of the cord, we believe that the same might be expected from tea; it seems to me there is only a difference in degree.

If from the history of the patient the spinal symptoms cannot be attributed to any other cause, and as we find here an extreme abuse of a beverage, we are led to attribute them to tea-intoxication. As to the disturbances of sensations, they might be of hysterical nature, although no other stigmata were found. The patient perhaps always was hysterical, and it is easy to understand how a fluid containing intoxicating principles absorbed in an unusual quantity for several years, and therefore circulating daily in the blood-vessels, could develop hysteria and spinal symptoms in a patient who is predisposed to nervous diseases. The predisposition is present here on account of hard labor, unhygienic conditions of life, and perhaps artificial privation of the genital organs. It is also possible that the spinal symptoms were to some extent present previously to the abuse of tea; the last circumstance, perhaps, hastened the development of the symptoms, and in addition gave place to

hysteria. At any rate, in our mind the intoxication in question played a certain rôle in the existence of all the symptoms combined. The only remarkable feature in our case is the fact that cerebral symptoms are not marked, and the majority of those mentioned by other writers are totally absent.

I wish to express my indebtedness to Dr. John Wanamaker, 3d, for his kind assistance in taking the history of the case.

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*HEPATIC INADEQUACY AND ITS RELATION TO IRREGULAR GOUT, WITH SPECIAL REFERENCE TO TREATMENT.**

By I. Burney Yeo, M.D., F.R.C.P.,
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When your excellent honorary secretary, Dr. Sunderland, conveyed to me your complimentary invitation to address you this evening, I hesitated as to whether I could find any subject, connected with the special work of this society, that would be worthy of your attention; and when I looked through the reports of your previous meetings and saw what excellent work had been done at them, my feelings were much like those of the celebrated American author who, lamenting the fate of modern novelists, complained that "all the stories had been told!" But I was struck with a remark which fell from Dr. Fortescue Fox at your inaugural meeting: he stated that "a very eminent medical man" said to him that the spa physician had "an unrivaled field for the study of chronic ailments." This is so just and true a remark that I will ask you to regard what I shall say to you this evening as intended merely as a gentle irrigation of the vast field you cultivate. The late Sir Andrew Clarke used to say that the London consultant practiced under, in some respects, great disadvantages. It was so difficult for him to learn the results of his advice. "If," he said, "your prescription cures the patient, he *rarely* returns; if it fails to cure him, he *never* returns." Now your patients cannot as a rule escape you in this way.

I have heard of physicians at continental spas visiting their patients in their baths—they could hardly escape then. But without paying visits of this intimate kind, it is certain that you have exceptional opportunities for carrying out a very thorough investigation of the cases that come under your care.

It is then as an appeal to your experience and as a suggestion for further observations, under these favorable conditions, that I propose to put before you a few thoughts, prompted by my own observations, on the subject of what I suggest may be termed "hepatic inadequacy."

By hepatic inadequacy I mean such defect or disturbance of the functions of the liver as, while stopping short of giving rise to what are known and generally accepted as diseases of the liver, yet leads to impairment of the general health. And I shall possibly trespass on somewhat controversial ground, for I shall include in this category many, if not all, of those cases known or spoken of as cases of "irregular gout," which I am inclined to believe arise in this way. But I wish it to be understood that all I have to say on this head is suggestive and not dogmatic. You, who necessarily see so many of these cases and have such ample opportunities for investigating their histories, analyzing their symptoms, and controlling their treatment, will fortunately be most competent critics of the views I shall put before you.

I should like it also to be understood that these views are founded mainly, if not wholly, on clinical observations and practical experience, and that I strongly hold the opinion that when such observations are found to be inconsistent with laboratory experiments and theories founded on them, that the clinical observations, if sound and accurate, must always be supreme.

It is necessary to insist upon this, because it seems to me that some of the ablest scientific workers in this field have become, as it were, fascinated by their own theories and experiments, and have overlooked the obligation of making their conclusions accord strictly with the facts of clinical medicine and clinical therapeutics.

Moreover, the results obtained and the views held by different experimenters differ widely, according to the methods they adopt, according to their confidence in those methods, and sometimes, it seems to me, according to their preconceived ideas. Therefore I maintain that those of us who base

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*An address delivered at the annual meeting of the Balneological and Climatological Society of Great Britain.

our conclusions on clinical observations have the right—I would say the obligation—to criticize any doctrines and conclusions, put forward as the result of laboratory investigations, which do not accord fully with our actual experience of the particular morbid states concerned, as we see them in living men.

If you were to attempt the task of reading all the reports of the many experimenters who have worked at the subject of gout, you would find their results to be a perfect maze of contradictions, as irritating to the brain as the hypothetical showers of uric acid crystals in which some of them seem to believe.

Observation *in vitro* may be mutually destructive of opposing theories, but they can never be regarded as decisive of vital operations unless they are, in all respects, consistent with clinical, *i. e.*, with vital, facts.

Now I propose to suggest to you that in the chronic ailments which we are accustomed to recognize as cases of "irregular gout," the clinical evidence, both with regard to the symptoms and the results of treatment, seems to point to hepatic inadequacy as being the initial cause of these morbid states. And I think it is reasonable to infer either that these cases are improperly termed "gout," and should be termed instead cases of "hepatic inadequacy," or that "hepatic inadequacy" is the original cause of gout, and that the manifestations of regular and articular gout are the result, near or remote, of the disturbances in metabolism thereby initiated.

It has always appeared to me that clinical evidence has been opposed to the conclusion that all or the greater part of the phenomena of gout, as we now see them, are the result of uratic precipitation in the tissues, and that the widely spread and popular idea that the treatment of gout consists in the administration of so-called "solvents of uric acid" is an erroneous one—not only erroneous, but in the way it is now "boomed" positively injurious.

Nor have I been able to find any sound clinical basis for the doctrine which was advanced I believe originally by Sir William Roberts, and has been most ably supported by your learned treasurer, Dr. Luff, that sodium salts are injurious to gouty persons, and that alkalies are useless in the treatment of gout.

Sir William Roberts himself admitted that uric acid "did not cover the whole field of gout," and Professor Bouchard has insisted strongly on this; and I would add that uric acid not only "does not cover the whole field of gout," but we know it spreads widely over other pathological fields which have nothing to do with gout. For my own part I have great doubt whether uric acid has any other relation to gout than that its overproduction in the human body is a result of the "gouty" state—a state which I would suggest takes its origin in disturbed hepatic metabolism. This contention is an important one from the point of view of therapeutics, as it must modify greatly our ideas as to the appropriate treatment of the gouty state, and especially our views as to its prevention. And it is, I consider, most important that we should observe and carefully analyze all the clinical phenomena of gout, and the "gouty" state, with minds unfettered by preconceived chemical theories.

Without for one moment desiring to detract from the importance to medical science of physiological and chemical research, yet I think it is not always so helpful to clinical medicine as it might be, unless it is carried out in what I would call a clinical spirit, and not with the object of dogmatically imposing its conclusions on the clinical physician. It is sometimes difficult to distinguish between the resulting facts of a research and the mere opinions of its authors. An apt illustration and example of the truth of these statements may be found in the effect that was produced some thirty years ago by the publication of the Edinburgh Committee's research on the action of mercury on the liver.

The supposed results of this research, put as briefly as possible (I quote from the report), were that mercury, "so far from increasing the flow of bile, causes its diminution, through its general depressing effect on the entire organism," and, the reporter adds, "the practical advantage of demonstrating that mercury is not a cholagogue cannot be too highly estimated."*

The immediate effect of this report was that medical practitioners were afraid to order a dose of calomel or of blue pill for fear of being thought unscientific. A number of comparatively new drugs—podophyllum, euonymin, iridin, and others—came into fashion and were prescribed instead of the much discredited calomel.

*Medicine in Modern Times. Macmillan, 1869; pp. 233-235.

But after a time practical men found that they could not get on without calomel or blue pill; and the late Dr. Hare, in an address given in 1883 before the Metropolitan Branch of the British Medical Association, on "Good Remedies—Out of Fashion," made the following remarks: "I am quite aware of the experiments by which it has been proven, or said to have been proven, that mercurials are not cholagogues, but this I know, that a good dose of calomel or blue pill, given in the olden fashion, and followed by some sulphate of magnesia or other good saline purgative in the morning, will bring away copious motions of yellow, green, or black matter, *such as you do not get otherwise,* and one feels, after that, light and buoyant and bright, and with a head clear for work, a state such as one has not felt in perhaps for weeks before; the melancholy—the black-bile—has been removed."

Now what, after thirty years, is the teaching of physiologists, in the present day, as to the action of calomel? It is that although calomel does not really cause an increased formation of bile, it acts on the bile-expelling mechanism and promotes the flow of bile into the intestines, there to carry on the chemical and other changes in the intestinal contents which it is known to produce; and it necessarily also promotes its elimination. Is this not an important effect? Was more than this claimed in calling calomel a cholagogue?

Is it a small matter to clear the bile passages of possibly thick, viscid bile and mucus, when perhaps there is also some slight catarrh of the bile-ducts? Is it a small matter to clear the way for a fresh onflow of bile along the natural passages, partially obstructed by a languid current? Well, we now no longer hesitate to prescribe calomel for fear of being thought "unscientific." I do not think I am saying too much when I say we know it promotes, indirectly, if not directly, the hepatic functions, especially the excretory functions of the liver, and that it is a remedy for "hepatic inadequacy."

A patient of mine, a "gouty" patient, a few years ago went for a course of treatment to one of our famous English spas. She was treated by a physician of eminent skill and repute, a distinguished member of this society. When she returned, greatly improved in health, she told me that physician had given her, besides the waters she drank, a calomel pill every or every other night! Evidently he was not of the opinion of the Edinburgh Committee, that "the practical advantage of demonstrating that mercury is not a cholagogue cannot be too highly estimated."

Indeed calomel is, I should say, nowadays used as extensively as ever it was in the treatment of chronic disease, especially in functional disorders of the stomach and liver, in which I venture to include many forms of so-called "irregular gout."

I find in Martindale's interesting analysis of recent prescriptions that podophyllin was prescribed 189 times, euonymin 238 times, and calomel 837 times!

Now there is another inquiry to which I think you might advantageously devote the special means of practical observation which you possess, and that is, What is likely to be the effect on practical medicine of the recent experimental impeachment of the use of sodium salts and alkalies generally in the treatment of gout and the gouty state?

Have all the physicians of the world been wrong in sending their gouty patients to drink alkaline waters rich in sodium salts? Have we all of us who have any tendency to gout been daily provoking the precipitation of sodium biurate in our tissues by drinking freely of those common table waters containing sodium bicarbonate which are so popular? Have all persons with gouty antecedents, in which I should have to be included, been wrong in taking sodium chloride with their food? Then I would ask you to remember that sodium chloride and sodium bicarbonate, and other sodium salts, are *always* present in normal blood, and if these are the agents in the precipitation of sodium biurate in the tissues, they are always there in the blood to effect that undesirable result, whether we do or do not take them into the stomach in the shape of food or medicine; and obviously they must normally reach the blood through the food we take. But the chemical argument assumes this form: those who give sodium salts and other alkalies in gout do so in the belief that they dissolve uratic deposits in the body, and as it can be shown that out of the body they do not do so, therefore this practice must be wrong.

To this argument I reply that so far as I am concerned I do not give these salts with any such object, save in the case of urinary and renal uratic deposits, in which their utility has never, I believe, been seriously doubted. I give them because I believe they are most useful—especially the sodium bi-

carbonate—in promoting the healthy function of the liver and in favoring metabolism generally. I believe the alkalies do this, to some extent, by promoting osmosis. Physiologists appear to be agreed that sodium chloride, "in passing through the body, fulfils the useful office of stimulating metabolism and secretion."*

Many of you must have noted the rapid effect of drinking a warm solution of sodium bicarbonate in thinning the tenacious mucus secreted in the so-called "dry" or "gouty" catarrhs of the air passages. It is the best expectorant we possess for this purpose, especially when combined with sodium chloride. This is, as you know, the explanation of the well known value of Ems water in the treatment of such cases. It certainly also promotes the flow of urine and doubtless also the flow of bile.

The remarkable effect of solutions of sodium salts on the hepatic functions is shown by their curative effect in "gouty" and dietetic glycosuria. The remedial influence of the alkaline sodium waters of Carlsbad, Neuenahr, and Vichy on such forms of diabetes cannot be disputed. We must all have seen numerous instances of their remedial action in other forms of so-called "gouty" disorders.

When, a good many years ago, I was house surgeon to a county hospital, the chairman suffered from chronic gout and renal colic; he used to go for relief to Vichy, and he was in the habit of showing me, on his return, in a bottle, some dozens of roundish concretions of uric acid which he parted with during his course at Vichy.

I will mention another, quite a typical case, and one of many. A gentleman over middle age was sent to me by his country doctor in June, 1894, as suffering from "gouty" headaches of a severe kind, which had tormented him for many years, and he wished me to advise him as to what spa he should visit. I advised him to go to Marienbad. He went there for five consecutive years, drinking these waters, rich in sodium salts, with entire relief to his headaches, and he is returning there this year.

Another gentleman, who has been under my observation for more than twenty-five years, a member of a gouty family, and who has been most anxious to avoid similar gouty troubles himself, to this end, for more than a quarter of a century, has dosed himself with alkalies daily—sodium bicarbonate chiefly, but also potassium bicarbonate, and magnesium carbonate. He is an exceptionally large eater, taking much animal food, which he firmly believes he needs to "support his system." He frequently drinks at meals champagne or port diluted and in moderate quantity. His urine is almost always faintly alkaline and is passed in considerable quantities. He has never had any true gouty attack nor any signs of uratic precipitation. He is now sixty years of age, and he considers that in the past five years he has been in better health than at any period in the last twenty-five years. He is a scholar and an acute logician. If you were to ask him, on theoretical grounds, to leave off his soda and other alkalies, he would argue that he owes to them his freedom from goutiness and his ability to digest large quantities of animal food which he needs for his support, and that he owes his present good health to taking them.

Again, those who accept this experimental argument against the use of sodium salts in the gouty might be tempted to starve the blood of these its necessary constituents, and so disturb seriously the processes of general metabolism. Even if we were to accept this explanation of the mode of precipitation of sodium biurate in the joints, it only explains an incident of gout, an incident which we know does not always occur, and an incident which we also know may occur without giving rise to any of the symptoms of gout. I have often seen uratic deposits on the helix of the ear in persons who have never had any knowledge of having suffered from any of the symptoms of gout.

But the true pathogeny of gout must be sought for in some disturbance of function antecedent to the accumulation of urates in the blood, which accumulation occurs in other diseases besides gout; and I believe it will be found in disturbances of hepatic metabolism—in short, in hepatic inadequacy.

We may therefore believe that sodium salts exert their remedial influence by a beneficial action on the gastric, intestinal, and hepatic functions, and on the nutritive changes in the tissues, quite irrespective of any direct solvent action on sodium biurate. By their action on the liver they may prevent "the excessive introduction of urates into the circulation," or by their stimulating action on the kidneys they may counteract the tendency to their "unduly lingering in

*Halliburton's Kirkes' Physiology, p. 545.

the blood and accumulating therein;" so that their influence may be in the truest and best sense remedial, inasmuch as they would attack the morbid processes at their origin and source.

As to the argument that attacks of acute gout are frequently induced while taking a course of sodium waters, I admit that such attacks no doubt do occasionally occur, but certainly not frequently, and they occur quite as frequently at other spas. Dr. Fortescue Fox has called attention to this fact in the able paper he read before this society on "Articular Gout," where he states he has had to bewail similar occurrences at Strathpeffer. "Bitter experience," he says, "has taught me that the routine treatment by waters and baths, with reduction of dietetic supply and augmentation of waste, whilst it removes the gouty symptoms from one man increases them in another." I have already pointed out that Sir William Roberts has himself maintained that uric acid does not "cover the whole field of gout," and that "if uric acid were altogether eliminated, a pathological entity would still remain and be recognizable as gout."* And Professor Bouchard says: "It has by no means been demonstrated that in gout uric acid is the only or even the chief matter contaminating the fluids . . . many of the chronic lesions of gout are in part composed of or occasioned by precipitated urates; but the disease itself is not due to uricemia."†

If we refer to an American authority on gout—Professor Lyman, of Chicago—we find him convinced of the value of alkaline and sodium waters in gout. He says: "It has been proved that the administration of alkaline waters promotes the flow of bile, and is followed by an increase in the amount and activity of the digestive fluids . . . as a general rule it may be asserted that the salts of sodium are safer and better tolerated than the other alkaline salts;" and he refers to the fact that Charcot and his pupils have given for months at a time an ounce a day of sodium bicarbonate without the slightest ill effect.‡

Then both Professor Bouchard and Professor Lyman call attention to the close relationship between gout and biliary lithiasis. Bouchard found that of one hundred cases of biliary calculi under his observation thirty per cent had gout among their antecedents. It has also been noted that young women who in early life have suffered from biliary colic tend, later on in life, to develop gouty arthritis, and occasionally, after the establishment of articular gout, it happens that its crises alternate with the attacks of colic, "affording a complete demonstration of the close relationship that exists between the two disorders." Now the value of sodium salts and waters in the treatment of biliary lithiasis cannot be questioned.

But it may be asked what are the symptoms referable to hepatic inadequacy presented by patients with irregular gout?

In the first place, the feces are often pale, from the absence of bile coloring matter, and often very offensive; there is often constipation, but sometimes more or less diarrhea.

Some enlargement of the liver may frequently be made out, with tenderness on pressure where it is uncovered.

The complexion is often muddy and the conjunctiva yellowish, and the patients often complain of a sweetish-bitter taste in the mouth and loss of appetite.

The urine is high-colored and often of high specific gravity; I have found it frequently range between 1028 and 1036. It is usually extremely acid, and it gives a color reaction which I have been led to associate with disordered hepatic functions. On boiling and adding nitric acid, various shades of mahogany color are developed, so pronounced in some instances that the urine looks almost as black as ink in the test-tube; while in others there may be only a faint purplish tint.

But this coloration of the urine with heat and nitric acid is very common in the gouty state, and it is also commonly found in functional and malignant hepatic disease.

It has seemed to me that, so far from the kidneys being functionally diseased in these cases, as has been suggested, they really eliminate excrementitious substances that are normally excreted in the bile, and hence this color-reaction. It is certainly not dependent on constipation, because it is not very uncommon to find diarrhea coexisting.

These are symptoms which I suggest go

*Report of Proceedings of the Medico-Chirurgical Society, British Medical Journal, Jan. 14th, 1893.

†"Maladies par Ralentissement de la Nutrition," 2d ed., p. 264.

‡Article on "Gout," in the Twentieth Century Practice of Medicine.

with disturbed hepatic metabolism and imperfect excretion of bile.

Dr. Myrtle has described an aggravated form of this condition in an interesting paper in the transactions of your society under the title of the "Gouty Liver;" but as Dr. Kerr has suggested, I think a better title would be "The Liver in Gout."

I believe also that I am following in the footsteps of that eminent clinical observer, the late Dr. Murchison, in thinking that the initial trouble in gout is disturbed hepatic metabolism.

Now the bile-secreting cells of the liver in some persons seem extremely sensitive to what appear very slight influences, while there can be no doubt as to the intimate corelation between the three great eliminating organs, the liver, the kidneys, and the skin.

A single morphine lozenge will produce pale stools immediately in certain persons; alcohol, emotion, chill, will do the same in others.

A well known statesman used to have a fit of gout, or become "gouty," if he ate a few strawberries! It was doubtless the knowledge of a few facts like this that led the late Sir Andrew Clarke to forbid his gouty patients to take fruit. We know how much more common it is to get attacks of irregular gout during the cold northeast winds of spring. The skin gets chilled and its excreting functions impaired, and this chilling of the skin seems sometimes to be reflected on to the excreting function of the liver, and we get what we have been accustomed to term of late years a "liver chill."

Here again we see a probable connection between liver inadequacy and goutiness.

There is another type of hepatic inadequacy in which I know the members of this society take an especial interest. I might perhaps call it "the liver of the seaside." A very striking case of this kind was sent to me some years ago by my friend, the late Mr. Jowers, of Brighton. A middle-aged American lady had been spending three months at that resort, and had been suffering the whole time from symptoms which were thought to be of an obscure nature by the homeopathic practitioner under whose care she had for some time remained; and as she was getting no better, and becoming extremely anxious about her condition, she consulted Mr. Jowers, who at once ordered her to leave Brighton and come to London.

When I saw her she was in a wretched state of mental depression; she was impressed with the belief that she was most seriously ill and that she would never return to America alive. When I inquired into her symptoms I found she had lost all appetite, that she had headache, a "bad taste" in her mouth, and a flabby, coated tongue; she was constipated, with pale stools; her urine was of high specific gravity, throwing down lithates and becoming of a mahogany color with heat and nitric acid. The liver dulness was somewhat increased, and there was tenderness over its free border in the epigastrium. I reassured her as to the nature of her symptoms, and pointed out to her that she was suffering from what had been called "Brighton dyspepsia," and that she would soon get well now that she had left that place. I gave her some small doses of calomel on alternate nights, a bicarbonate of sodium and nux vomica dose before each of her meals, a glass of Carlsbad water on alternate mornings, and as her heart was very weak from the long-continued dyspepsia and loss of appetite, I got her some very fine old cognac at 25 shillings a bottle, which helped her to recover tone and strength. She soon got better, and a few weeks later in the season I met her in Paris, cheerfully enjoying the legitimate pleasures of that gay capital.

It has been suggested by some members of your society that those symptoms attacking certain visitors at the seaside might be due to the ozone in the air. I do not think so, because I have noted again and again that such symptoms are never observed in anything like the same degree in seaside resorts where visitors can dwell three or four hundred feet above the sea. It is when they are obliged to live near the sea and on a level with it that these symptoms are most prone to arise. I believe it is some subtle influence which checks the activity of the bile-cells, and there is thus developed a form of hepatic inadequacy. What that subtle influence is I do not know; it may be analogous to that which excites asthma in certain places in certain people; for I have known an asthmatic patient have asthma badly at Deal, and when at my wish he moved to Folkestone, only a few miles further west, but not on a level with the sea, the asthma left him while driving from the station to his lodgings in the latter place, and did not return while he remained there.

You will also find that if gouty patients are sent to the Upper Engadine they often

get very uncomfortable in that bracing climate. They lose appetite, become constipated, have pale stools, and if they have hemorrhoids, these become much more troublesome, and their skin sometimes assumes a subicteric hue. If they leave the Engadine, as they should do, and go to a resort on a lower level, they generally soon get well. I have seen exactly the same thing happen at the Riffel-Alp, for these elevated stations are unsuited to the gouty.

But there are physiological reasons, as well as clinical reasons, for incriminating the liver in the production of the gouty state. We know that the liver is specially concerned in the metabolism of carbohydrates (its glycogenic function) and also in the metabolism of nitrogenous material (the formation of urea and uric acid). Halliburton says: "The facts of experiment and pathology point very strongly in support of the theory that urea is formed in the liver;"* and again, "uric acid is not made by the kidneys." Experiments point to the liver as the seat of its formation; "it is probable that ammonia and lactic acid are normally synthesized in the liver to form uric acid."†

We know also that in the gouty one of these functions—the glycogenic—is often disturbed, and is restored by alkaline (sodium) medication. Is it not reasonable to conclude that another function of the liver, carried on side by side with this one, is also prone to be disturbed? for we clinically see it restored by the same means.

Again, another function of the liver is the formation of bile; this is regarded by many physiologists as a subsidiary one, "bile containing the waste products of the liver, the results of its other activities,"‡ and this third function we also find disturbed in the gouty.

Perhaps you will allow me in conclusion to offer, for your consideration, one or two suggestions as to the influence of diet in these cases. Apart from individual peculiarities which are common in the gouty, my impression is that the safest diet for these patients is the simplest diet. It is a mistake to dogmatize about diet for the gouty. We must study their individual dietetic capacities, and adapt the diet to them.

A vegetarian diet may suit some, but it has not fallen to my lot to meet such cases. But I am bound to admit that I have seen the most troublesome gouty headaches disappear and a condition of greatly improved health result from an exclusive, or nearly exclusive, diet of pounded meat with liberal draughts of hot water. I have rarely prescribed this diet myself, but I happen to have been officially brought into contact with those who have been following this mode of treatment, and I have not been able to resist the evidence of its success in some cases, and although in one instance the patient seemed at first to be made very weak and thin, yet he was free from headaches, and after perseveringly following the treatment for some months, ended by finding himself in better health than he had been for many years. Now the reason of the success of this treatment in such cases is, I think, plain. The pounded lean meat diet is about the simplest that can be offered to the feeble digestive organs, and physiologists tell us that "proteid food increases the quantity of bile secreted," and the large draughts of hot water flush the excretory ducts both of liver and kidneys. Extremely simple food, limited in amount, meaning as it does digestive ease, means also freedom from goutiness. I have ventured to paraphrase a couplet of Dr. Watts:

> **"Nature finds some mischief still**
> **For idle food to do!"**

To cure goutiness we must get rid of this "idle food"—food which is in excess of our wants, and a trouble to our metabolism.

There is much also in the quality and cooking of food—often more, to my thinking, than in the kind of food. The difference in the wholesomeness and digestibility of different specimens of bread is remarkable, and so it is with joints of meat, poultry, and fish.

I could extend this remark as to quality to wines also. The late Professor Tyndall once told me that an eminent London physician advised him to drink "claret." "But," he said, "I asked him 'what claret?'" So far as my observation goes claret is really one of the most risky wines to prescribe (without regard to its kind) for a gouty patient, and when I see "port" put at the head of a list of wines which induce gout, I am inclined, like Professor Tyndall, to ask "What port?"

One of my gouty patients, who is a fine judge of wines and a very careful liver, has excluded every wine from his dietary, ex-

*Halliburton's Kirkes' Physiology, p. 537.
†Ibid., p. 541.
‡Ibid., p. 487.

cept "port," of which he drinks two glasses daily. He has suffered for many years from gouty headaches, and has had deposits of sodium urate removed from his eyelids; but he has never had articular gout, and keeps in very fair health, and for the last five or six years has had no serious gouty symptoms.

I find a dry port, long in the wood, if it is freely diluted with hot water, one of the best and safest wines for those gouty people who need some stimulant. Gouty women, I find, bear all wines badly.

Many gouty patients can drink a small quantity of a well matured, high-quality wine—even champagne and port—especially if diluted with water, who would be made ill by a single glass of common claret. The more diuretic the effect of the wine proves to be, the more suitable it is to the particular case.

There seems to exist a general impression that the gouty person is one who does not take an adequate amount of physical exercise, and that he must be ordered to take more. Now that is not my experience. The gouty patients that I have seen have, I should say, in the majority of instances, been extremely active and energetic people, and it is often difficult to get them to take sufficient rest. This excess of muscular activity constantly leads them to take an excess of food, and then trouble arises because their excretory organs can hardly keep pace with the waste produced in the body; this is especially notable after middle age, when the activities of the excreting organs become reduced and both liver and kidneys may become inadequate.

A well known physician, returning home from his morning ride in the park, met the late Sir James Paget, and asked him why he did not ride in the morning? "Why should I?" asked Sir James. "Oh, to shake your liver up," replied his friend. "But I don't wish to shake up my liver," said Sir James; and I think there was a great deal of practical wisdom in that reply.

But I must not trespass longer on your kind attention. I have ventured to ask your consideration of some practical reflections as to the relation of the liver to goutiness. As I said at the beginning, I wish to avoid all tendency to dogmatism in a matter which is so open to differences of opinion. But we must also be careful not to be led away by the dogmatism of the laboratory. For chemistry or pharmacology to dictate to clinical medicine is like art dictating to nature. My chief object has been to defend the sodium salts from the attack that has been made on them, because I believe we have in these salts the most valuable and indispensable of hepatic stimulants.

We practical physicians have to observe the phenomena of health and disease as they present themselves in man, and we must not allow any *a priori* chemical arguments to color or prejudice our clinical observations.

Let us be observers and students of nature, but don't let us dictate to her. Laboratory work should be the handmaid of clinical medicine, but clinical facts must not be distorted to accord with laboratory results.

In reading the reports of much of the experimental work that has been published in regard to gout, I have been forcibly reminded of the lines of Omar Khayyam:

> "Myself when young did eagerly frequent
> Doctor and Saint, and heard great argument—
> * * * * * but evermore
> Came out by that same door where in I went."

THE TREATMENT OF THE HEART IN TYPHOID FEVER AND OTHER INFECTIOUS DISEASES.

ABRAMS states that he has of late employed with excellent results, not only in the treatment of typhoid fever and pneumonia, but in chronic diseases of the heart, a procedure which he calls the siphon method. The patient is prepared in the usual manner for taking a sponge bath, and beyond this no disturbance of the patient is necessary. Then a siphon bottle containing the carbonated liquid is gradually discharged over the surface of the body, notably on the thoracic region. If one wishes to comply with the requirements of the Schott system, although stimulation is not so pronounced, the siphon bottle may before use be immersed in hot water until the requisite temperature is attained. Within a few minutes one may note after the employment of the siphon method a reduction of the pulse from ten to twenty beats a minute, which rate is maintained for a varying period of time. The pulse becomes likewise endowed with more strength, and there is a feeling of exhilaration such as rarely obtains after the cold bath. Pulse-tracings taken in a convalescent typhoid patient, with an extremely weak heart, have demonstrated the favorable action of the siphon method.—*Medical News*, March 16, 1901.

The Therapeutic Gazette

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Leading Articles.

THE PREVENTION OF MALARIA.

We have more than once in the editorial columns of the THERAPEUTIC GAZETTE called attention to the very extraordinary advances which are being made in the study of malaria, and which prove that the mosquito is responsible in every instance for the dissemination of this disease, which has until recent years been thought to be due to "miasm" or to some condition entirely disassociated from animal life. The very valuable experiments carried out by Manson, Ross, and a host of Italian investigators have proved beyond all doubt that the mosquito carries the infection to the human being from another human being from which it has originally drawn blood, and we called attention not long since to the interesting experiments carried out by Manson, in which he imported mosquitoes from Italy to London, and exposed his own son, who had never been exposed to other malarial infections, to the bites of these mosquitoes, with the result that this young medical man developed the disease.

Our attention has once more been called to this important subject by a valuable issue of the *London Practitioner*, in which its able editor, Mr. Malcolm Morris, has arranged for a series of articles by well known authorities on the study of malarial infection. The first article is one by Patrick Manson, in which he brings forward the evidence now at our disposal to prove positively the fact that we have already stated, namely, that the mosquito is responsible for every case of malarial fever infecting man. He recognizes the fact that many persons will claim that they have met with cases of malarial infection occurring when the patient was not exposed to mosquito bites, but he goes on to point out that to prove this point such disbelievers in the mosquito theory must show that the patient was never subjected to the bite of a mosquito, and of course this is, in the majority of cases, an impossible thing to do. The well known fact that places considerably above low-lying land or the upper stories of houses confer an immunity against malaria which is not conferred by residence in lower districts does not in the slightest degree disprove the mosquito malarial theory, because the mosquitoes naturally adhere to some extent to the water level, in which water they lay their eggs; and as he also points out, the disappearance of malarial fever during the presence of cold weatner does not prove that the frost has destroyed any "miasm," so-called, but rather that it has prevented the mosquito from being so active and from infecting the individual. Further than this, the assertion that persons are very frequently bitten by mosquitoes and yet do not develop malarial fever is not proof that the theory of mosquito infection is incorrect; for so far as we know at the present time, only mosquitoes belonging to the genus Anopheles have been found to be efficient hosts for the carrying of the parasites from man to man. There are about thirty species of Anopheles in different portions of the world, and all of them, so far as we know, are capable of carrying the infection.

Manson then goes on to tell us the interesting facts that certain definite conditions are necessary for the multiplication of the malarial mosquitoes, namely, a high atmospheric temperature varying from 75° to 104° Fahrenheit; secondly, collections of water, fresh or brackish, containing not over two or three of salt to one of

fresh water, which collections of water must be undisturbed by winds or currents, and which must persist for a time sufficiently long to allow for the evolution of the insect from the egg. If in addition to these possibilities we have a large number of low forms of animal and vegetable life present, we have a condition which is most favorable for the growth of the mosquito and of the parasites. In the presence of very cold weather the larvæ are capable of going into a state of hibernation, so to speak, and so surviving until the return of warm weather. While it is believed in the majority of instances that the mosquito obtains the parasites from the human being, it is not yet proved that it does so in every instance; for it is well known that certain of the lower animals are capable of harboring blood-parasites which in the majority of instances at least are quite different from those harbored by man. Yet it is possible that these animals also may harbor the parasites which affect the human blood.

Manson then discusses the various prophylactic measures which may be introduced to prevent malarial infection. The first of these is of course the suppression of the mosquito. This may be more or less effectively accomplished by many different measures. All pools and ponds should be drained and filled in. Slowly running streams should be so trimmed at their banks as to prevent adjacent pools from harboring the malarial organism, or, to speak more correctly, the larvæ of the mosquito. After the occurrence of floods, a careful drainage of the remaining pools should be instituted; and in the carrying out of engineering projects no pools should be allowed to remain alongside railway embankments.

The second important prophylactic measure is to prevent the infection of man by the bite of a mosquito bearing the parasite. In this connection most valuable experiments have been carried on in Italy within the last few years, of which perhaps the most interesting are those of Celli, Grassi, Fermi, and Tontini, and by the Red Cross Society of Italy. Some of these experiments consisted in taking the employees of two railway lines running through exceedingly malarial country, placing certain of these employees in houses during the night-time, the windows and doors of which were carefully protected by mosquito netting, and allowing the other set of employees to inhabit buildings similarly situated without being provided with such protection. They found that out of twenty-four individuals who were protected, only four contracted malaria, and these were men whose duties took them abroad at night, or that neglected the precautions enjoined upon them; whereas, of the fourteen men of another road who were not protected, twelve got the fever, the two who escaped having apparently acquired immunity. On still another line of twenty-four protected individuals all contracted the fever. These experiments have been repeated again and again by Celli, and by a number of the other investigators that we have named.

Closely in association with these preventive measures to prevent the spread of infection is of course the well known administration of quinine in moderate dose, day after day, for the purpose of preventing the parasites from multiplying in the blood.

The third and last preventive measures which man may institute for his protection is the prevention of injection of the Anopheles by the parasites. So far efforts of investigators have not progressed sufficiently to permit us to carry out very definite action in this line. But it is worthy of note that we can do much toward preventing the multiplication and growth of the mosquito, and we may perhaps be pardoned if we remind our readers that the most important contribution to this subject was made by Celli and Casagrandi in the THERAPEUTIC GAZETTE for October, 1899. It will be remembered that these investigators recorded the results which they had obtained from the employment of various substances which have been found deleterious to the growth of the mosquito larvæ, and one of these substances, it will be remembered, was kerosene, which, in its crude form, poured upon the surface of a pool spread very rapidly, and in very small quantities acts as a powerful destructive agent.

THERAPEUTIC OPTIMISM VERSUS THERAPEUTIC NIHILISM.

For nearly twenty years the writer of this editorial when teaching therapeutics has endeavored to impress upon his pupils the fact that therapeutic optimism when carried to the point of irrational procedure is to be strongly deprecated, and he has also endeavored to combat the ideas which have

been advanced by certain persons who have endeavored to prove the truth of the old maxim that "a physician is a person who administers remedies of which he knows nothing for diseases of which he knows less." There can be no doubt that the careful observer of modern therapeutics is in one sense "between the devil and the deep sea" when he studies these two opposing factions in the medical profession. On the one hand, he sees an array of medical men who seem to think it possible to remove organic lesions and even to replace lost organs by the administration of medicaments, and he reads with grief and shame the reports of cases in which creosote has cured far-advanced pulmonary tuberculosis, chloride of gold remedied chronic contracted kidneys, and iodide of potash cured locomotor ataxia; while all about these fictions and mistaken reports is a circle composed of an immense number of synthetic products made by the chemist, and "boomed" by him for pecuniary returns without being possessed of real therapeutic merit. On the other hand, he sees physicians who are so intent upon the study of pathological and etiological processes that they pay no attention to the proper application of remedies in the treatment of disease, and are so buried in the interests of pathological research in the dead-room that they lose all grasp of the *vis medicatrix naturae* and of the real power of drugs for doing good.

As we have said before, the capable modern physician is one who avoids both of these extremes, and who, while recognizing his limitations in both directions, sets himself to a grave study of the needs of his individual patient and of the remedy which will meet these needs. Our attention is called to this important matter by an article written by Dr. Peabody in the *Medical Record* of March 30, 1901, entitled "Some Fallacies of Therapeutics." While we differ from this well known writer in a number of the points which he makes in his article, there are others which seem to us so worthy of remark that we cannot pass them by. Thus, he states that we are now looking at a time when the ingenuity of the chemist, the cupidity of the manufacturer, and the honest zeal of the physician conspire to multiply therapeutic agents and procedures; and he might have added that there are also physicians not inspired by honest zeal who now and then write paid-for papers lauding to the skies some new drug, although they really have had no adequate experience with it. He then proceeds to call attention to the fact that many of the so-called tonics that are placed upon the market depend more upon the alcohol which they contain than upon any of the medicinal substances said to be in them. This is particularly true of the various bitters which are widely advertised, and which in reality exercise little influence except for the alcohol which they contain, although many of them are sold as non-alcoholic and as remedies by means of which the alcohol habit can be broken up. Another fallacy which he points out, and which undoubtedly is widespread, is the belief that tannic acid when given internally is of no value for the purpose of acting as a hemostatic upon bleeding in remote organs, as, for example, the kidneys or uterus. Whether we believe that tannic acid circulates in the blood as an alkaline tannate or as a gallate, it is certain that it is capable of forming coagulation of albumin only as tannic acid. So, too, he points out that ergot is a practically valueless remedy in hemorrhage from the pulmonary vessels, since it is known to increase the pressure in the pulmonary artery, and, as we have pointed out, these vessels are without vasomotor nerves, and therefore cannot be stimulated to contraction by this drug. Again, as we have often pointed out, the use of lithium with the idea that it will aid in the elimination of uric acid is in the majority of cases useless, because it has a far greater affinity for the acid sodium phosphate of the blood than for the uric acid, and also because there is very grave doubt as to whether uric acid is the cause of the various conditions which are attributed to it; in most cases it being the alloxuric bodies and closely related substances which produce the symptoms.

On the other hand, there are two or three points in Dr. Peabody's paper to which we must take exception. He states very positively that there is practically no proof that bitter substances—as, for example, strychnine—are of any value as appetizers. We do not know what sort of proof he desires in a matter of this kind, but we believe that the vast majority of skilful practitioners have constantly seen the administration of strychnine and other bitters, without the associated use of alcohol, result in an increase in appetite and an increase in

digestive activity; and in the case of strychnine this is not only due to the influence of the bitter tonic upon the mucous membrane of the stomach, but is also due to the increased nervous energy which it is said to give to the digestive nervous organs under its influence.

Another point to which we must take issue is the statement that calomel is a "hepatic sedative," and still more positively do we take issue with the statement that iodide of potassium does not increase the elimination of lead by the kidneys in cases of lead poisoning. We have not infrequently known the urine of such a patient to be examined for lead with negative results for many days. After this iodide of potassium has been administered, and immediately lead has been found in the urine; and while we have no doubt that lead is usually eliminated by the intestines, as he says, we still believe that iodide of potassium is a useful drug in aiding its elimination in both ways, in that it forms doubly soluble iodides which are then readily passed out of the body. We heartily agree with him when he points out that the administration of iodide of potassium for the purpose of causing the removal of hyperplastic connective tissue is without the slightest warrant unless perchance the condition be due to syphilis, in which the drug does good, not by removing any connective tissue already formed, but by modifying the disease and so preventing the further progress of the hyperplastic condition.

Dr. Peabody's article is evidently written from the standpoint of one who having had large experience recognizes the fallacies and strong points of therapeutic procedures, but we think that he has tinctured it unduly with therapeutic pessimism, and as we have said before, some of his statements which seem to doubt the value of well recognized therapeutic procedures are open to criticism. On the other hand, it is well for physicians to know their limitations as well as their possibilities, and Dr. Peabody's article helps them to this end.

SUBSTANCES WHICH INCREASE THE FLOW OF BILE.

Many months ago we called attention to a research carried on by Pfaff and Balch, of Boston, upon the influence of various substances upon the flow of bile in the human being, they having been able to study the secretion of bile in a patient who had been operated upon for disease of the gall-bladder and who had a biliary fistula. It will be remembered that their results were interesting in that they found that practically no drug which is commonly credited with acting as a cholagogue produced any material increase in secretion save ox-gall, and corrosive sublimate, which exercised a feeble influence. At that time we pointed out that it would take many scientific researches to convince the profession that calomel and podophyllin were incapable of increasing the flow of bile into the intestine, whatever the actual effect of these drugs might be upon the secretion of this fluid in experiments. Our attention has once more been called to this matter by a research made by Elliott P. Joslin in the Laboratory of Experimental Pharmacology of the Harvard Medical School, his studies being made upon a married woman fifty-four years of age in the Massachusetts General Hospital in September, 1898, who, as the result of an operation, had a biliary fistula. His research, therefore, is in one sense a sequel to that of his instructor, Dr. Pfaff, and it is of interest not only because of the results which he obtained as to the influence of drugs upon the flow of bile, but also because of the facts which he collated in addition thereto. The research seems to have been carried out with the greatest possible care, and all sources of fallacy excluded. Joslin also found that ox-gall acted as an active cholagogue; the amount of bile solids secreted under its influence being forty-seven per cent greater than any periods before or after its administration, which confirms the work of Pfaff and Balch on the human being, and that of Stadelmann and his pupils on dogs. He also found that the effect of ox-gall on the bowels was not very marked, although in dogs he sometimes succeeded in producing diarrhea by its administration. There is doubt, however, whether the bile can be held responsible for the production of these loose movements.

The value of the presence of bile in the intestine in the digestion of fat was markedly manifest. Thus, the percentage of fat lost in the stools of the woman with biliary fistula varied from fifty-seven to sixty-three per cent; whereas, when the bile was administered by the mouth, it varied only from seventeen to twenty-three per cent

In other words, its use resulted in an actual diminution in the amount of fat lost in the stools, and the bile increased the digestion of fat nearly fifty per cent. The administration of ox-gall also aided in the digestion of nitrogenous food, less of it being lost in the feces than when the bile was not administered. This is probably due not so much to the influence of the bile upon the digestion of nitrogenous articles as upon the fact that by reason of the better digestion of the fat the albuminous articles of food were better exposed to the digestive juices. We would therefore suggest that when administering cod-liver oil to patients who have difficulty in digesting these substances, the physician also administers ox-gall in pill form, taking the oil and the ox-gall about an hour or an hour and a half after meals, so that it may speedily pass into the intestine.

THE USE OF SUPRARENAL GLAND FOR THE RELIEF OF PAIN.

There can be no doubt that the employment of suprarenal gland for the purpose of causing constriction of congested areas in the nose and throat, and even in the eye, has added very materially to our therapeutic resources, but so far we have not seen many recommendations for its employment in the treatment of painful affections. Of course, it is not to be supposed that the drug has any true power to benumb pain by its influence upon nerve fibers, though it is not to be forgotten in many instances that pain connected with serious pathological processes is due to hyperemia or congestion, which in turn produces pressure upon nerve filaments. We have, therefore, read with interest the report of several cases which has been made by E. A. Peters to the London *Lancet* of March 2, 1901. He records an instance of recurrent cancer of the breast in which various applications, such as permanganate of potassium or orthoform, and similar treatment, had been tried without good result; and even the application of cocaine did not insure a good night's rest. Painting a ten-per-cent solution of suprarenal extract over the growth at nine o'clock at night gave the patient entire relief till six o'clock the next morning. He also reports an instance of stricture of the esophagus, probably due to cancer, which was relieved, after other measures had failed, by sipping slowly a teaspoonful of a ten-per-cent solution of suprarenal before going to bed. Still another, of tuberculosis of the larynx, which had been previously treated with lactic acid, was very greatly relieved by being sprayed with a ten-per-cent solution of suprarenal extract; and a case of periodontitis, in which cocaine, iodine, carbolic acid, and chloroform were all applied with little effect, was given much comfort from the application of a pledget of wool soaked in a ten-per-cent solution of suprarenal extract tucked up between the lip and the gum, being renewed every two to six hours.

SHOCK FOLLOWING ABDOMINAL CONTUSION.

From the study which has been given this subject it might be thought that shock incident to severe abdominal contusion and its diagnostic significance are fairly well understood. It was long held that a severe blow upon the abdomen, particularly in the epigastric region, might cause a degree of shock either immediately or shortly fatal, even in the absence of any demonstrable lesion of the abdominal viscera. Against this belief it was urged that nearly all cases of fatal abdominal contusion showed unmistakable and even wide-spread visceral lesions. Experimentally it was demonstrated that shock could not be produced in animals without such lesions, and it was further shown that a fall of blood-pressure so great as to cause death was induced, not by the sudden commotion of the peritoneal organs or the solar plexus, but rather by jarring of the heart.

As a result of clinical experience it is well known that the symptoms of shock, of hemorrhage, and of peritoneal sepsis, the latter in an aggravated form, are so nearly alike that a differential diagnosis can at times only be made with very great difficulty.

Kustner has shown by pathological examination that many cases of death attributed to shock are in reality the consequence of sepsis.

Seliger (*Prager Med. Wochenschrift*, 1900, No. 29-52) demonstrates the fact that after contusion of the gut, bacteria can travel through its walls, and can rapidly cause death by septic peritonitis, even though the contusion be of such slight degree as to show no microscopic proofs of

its existence on a careful autopsy, the absorption of the bacteria and other toxins being so rapid that there is not sufficient time allowed for gross pathological changes of the peritoneum. Seliger, on the basis of this fact, and as a result of clinical study, concludes that death should be attributed to shock only when aggravated symptoms of this condition are manifest within the first two hours of the traumatism. All cases exhibiting symptoms of shock after this period he attributes to sepsis, thus explaining, and adequately in accordance with modern knowledge, cases of delayed shock of which so much has been written in the older surgeries.

Seliger, moreover, notes that contusions of the abdomen very rarely injure the stomach. The lesion, when found, is in the transverse colon, through the bruised walls of which infection takes place. He also notes a similarity between symptoms of shock of Mors thymica, of ileus, and of coprostasis, occurring in disease of the heart.

This conception of the etiology of the symptoms following abdominal contusions is of great importance to the surgeon. A common teaching, indeed one almost universally accepted, is to the effect that abdominal operation should not be performed when the patient is in a condition of profound shock. The reason for this is obvious. If, however, the symptoms which suggest profound shock are in reality due to a rapid absorption of toxins from the peritoneal cavity, a delay in the hope of better conditions to follow stimulating treatment is absolutely futile. It would seem rather that pronounced symptoms of shock occurring some hours after an injury, or recurring after partial recovery from primary shock, would constitute adequate grounds for immediate celiotomy, with flushing out of the peritoneal contents.

SOME RECENT EXTRAORDINARY THERAPEUTIC SUGGESTIONS.

To one whose line of work or whose inclination prompts him to review from time to time the current medical literature, there comes not only wonder at the wealth and excellence of the material offered, at the insistent activity and progress in all branches of his profession, at the extraordinary variety of ills to which flesh is heir, and at the wonderful efficacy of the medical and mechanical means employed for the relief of these ills, but also at times a sense of pleasure and amusement because of the *naïveté* of the reporter or the originality of the means employed for the cure.

Thus Oeder (*British Medical Journal*, March 9, 1901) narrates in unostentatious but vivid phrases his own sufferings from piles, and states that he obtained relief by so arranging pillows and bolsters that his pelvis was lifted a considerable distance from the bed. The base of the wedge thus formed was placed just beneath the buttocks. Sliding from this position was prevented by resting his head against the headboard of the bed. In this posture he slept, and he notes, with the enthusiasm of the true scientist, that the position was comfortable.

Anderson (*British Medical Journal*, March 9, 1901) describes in some detail the lodgment of a brilliantine bottle in the rectum. The withdrawal of this was attended by considerable difficulty, though forcible traction could readily be exerted by a wire twisted about the bottle's neck. The difficulty was attributed to the concavity of the bottom of the bottle, which acted as a sucker on the mucous membrane. This was relieved by passing the hand into the bowel so that air was allowed to enter. Anderson states that he need not discuss how the bottle got into this position, but notes, as a piece of damning evidence, "there was an absolutely empty vaselin bottle on the dressing table." This latter fact seemed to him conclusive evidence of a hopeless perversion.

Banks (*British Medical Journal*, March 9, 1901) describes a new, and he states an absolutely efficacious, treatment for obstinate pruritus ani. This consists in applying a red-hot iron to the anal skin for an inch and a half around the orifice. The treatment is suggestive of medieval surgery, but Banks mitigates the horrors of the procedure by the almost playful manner in which it is described. Thus he states that the patient is "tucked up" in the lithotomy position; the expression implying comfort, rest, and security. Instead of saying that the skin is burned, he notes that it is "well frizzled."

A zealous German surgeon, appalled at the mortality of peritoneal sepsis, and impressed with the inadequacy of the modern means for drainage, advises the carrying of

tubes through Douglas's cul-de-sac, after which the patient is strapped to a board, and the board is then elevated to an upright position. He even reports excellent results from this procedure.

Another surgeon advises celiotomy and evisceration of the abdomen, after which the patient is placed in a bath of normal saline solution, and the abdominal contents are allowed to float freely in the circumambient liquid.

It is noteworthy that the literature upon spinal anesthetization with which the periodicals were flooded but a few months back is now conspicuous by its absence. Nor does this imply that the method has become so well established and received such wide-spread and general recognition that further study is unnecessary.

Among the most striking treatments recently suggested is that of Leaf for the checking or curing of inoperable cancer of the breast. He has devised with great ingenuity a suction apparatus which is put over the cancerous area involved. This he believes reverses the lymphatic circulation and draws the cancerous juice to the surface. His conception of the pathology of the disease is a refreshing variation from the monotonous repetition which characterizes most standard text-books and journal articles; it is also quite original.

Reports on Therapeutic Progress

QUIET EFFUSION INTO THE KNEE-JOINTS OCCURRING IN WOMEN AND YOUNG GIRLS.

BENNETT *(Lancet,* February 23, 1901) in a lecture at St. George's Hospital called attention to an apparently little-noticed condition of the knee-joint not uncommon in women and young girls, which appears to be a passive effusion into the joint. It occurs but rarely in any other joint than the knee, but on one occasion Bennett saw it in the ankle.

The joints of the opposite sides are usually involved at the same time, but the effusion is generally greater on the right side. There is rarely any pain, and many of those afflicted with the effusion seem unaware of its existence. It is always, however, associated with menstrual irregularity or uterine trouble. It occurs mainly at two periods—at puberty, and when menstruation is about to cease. It may occur at any intermediate period if there is menorrhagia, excessive hemorrhage from the uterus, or great irregularity and difficulty in connection with menstrual affairs.

Although the joint contains a considerable amount of fluid, it is never tense except after superadded injury. The fluid, if the patient is standing, sinks to the lower part of the joint cavity and sometimes leads to a pouch-like overhanging of the synovial membrane at its lower anterior aspect. In the older subjects the aspects of the condition are similar, the main points being the absence of tension and heat and freedom from pain. The patients are usually anemic, but not invariably so.

After a study of several cases, Bennett advises the physician who attends a woman or girl, especially about the ages of eleven to fourteen years, to always inquire into the state of the uterine functions, and always to proceed with the ordinary surgical routine of examining both knees, although the patient may ascribe the effusion to a distinct injury of only one of them. If there be functional irregularities fluid will be found in both knees. In the absence of catamenial irregularity or uterine disorder some other cause must be sought for the condition. Any error in diagnosis can usually be avoided by noticing the character of the swelling, the existence of effusion on both sides, and the coincidence of marked menstrual or uterine trouble.

The primary treatment should be directed to the correction of the faulty functions. There should be moderate exercise and massage for the knees, combined with the healthiest of outdoor lives. Splints of any kind, and an invalid's life, should be rigorously avoided. In the absence of acute symptoms from injury the condition of the knees need lead to no restriction in the exercise.

Recovery, provided the primary cause of the effusion can be cured, invariably follows unless the condition has persisted so long as to produce permanent changes in the joint. If the primary condition proves intractable the effusion will occur continuously or recur at intervals. In cases where the effusion is continuous or is constantly recurring, an increasing weakness of the knees occurs, and in the later stages, when the health becomes broken down by frequent loss of blood or great pain, edema of the legs sooner or later follows, but this

has no specific meaning since it is merely the result of continual exhausting illness.

THE RECENT EPIDEMIC OF TYPHOID FEVER IN SOUTH AFRICA.

An interesting paper with this title has been published by TOOTH in the *British Medical Journal* of March 6, 1901. In it he tells us of his plan of treatment, which was as follows:

One of the earliest difficulties at Bloemfontein was the scarcity of fresh milk. It becomes necessary in such circumstances to fall back upon preserved or condensed milk. There are one or two forms of sterilized milk which are as good and palatable as the fresh article, but they are expensive. The condensed milks of numerous brands are excellent for ordinary use, but it is doubtful whether they possess much nourishing power in illness. The common sweetened form is most unsuitable; patients had as a rule an intense objection to it, and it caused undoubtedly in some cases troublesome vomiting. The other forms of nourishment —for example, arrowroot, beef tea, etc.— were had in plenty. The principle in dieting was to use all forms of nourishment liberally when it could be safely done. Most of the patients were thin and ill-nourished before contracting the disease. Dr. Tooth believes that food may be used much more boldly in enteric fever than is the usual practice. The safety of its employment depends solely on the digestive power of the stomach. If that power is normal, as in many cases it is, meat, for instance, is not likely to reach the ulcerated small intestine in a form more dangerous than a glass of milk is; for milk naturally becomes a mass of curds in the stomach before peptic digestion takes place, and if this latter process is incomplete the undigested curds may be a real source of danger. It seems, therefore, that one should be guided in this matter by the state of the tongue, the evacuations, and the appetite of the patient. If the tongue is moist and fairly clean, if there is no diarrhea —that is, if the evacuations are no more in number than, say, two a day—and fairly consistent, and if there be no tympanites and the patient has a strong craving for food, it is probable that his digestion will be good, and that a liberal diet, including, for instance, finely minced meat, and even thin bread and butter, will not only be safe but beneficial. On the other hand, the dry, brown tongue, frequent curdy stools, and especially tympanites, and a disinclination for food, indicate a condition of stomach that makes careful dieting imperative. Frequent small feeds of milk, peptonized or diluted with barley water, Benger's food, etc., must be used with care, and the stools frequently inspected as a guide to the state in which the food reaches the intestines. But the mechanical effects of undigested food in the small intestine are not the only ones to be feared. Experiment seems to show that the growth of the enteric bacilli is favored, and their virulence enhanced, by the presence in the intestines of other bacteria, such as are encouraged by the presence of undigested food, and themselves tend to produce gastroenteric trouble. So that a slight gastroenteritis may have a grave effect on the course of the attack. This has been justly emphasized by Dr. Horton-Smith in his Goulstonian lectures.

Alcohol was used most sparingly, and only in the severer cases, in which heart failure was feared; not at all in the milder cases. The small rapid pulse was considered the best indication for its use, not high temperature. They rarely gave more than three or four ounces, and never more than six, in the twenty-four hours. The long enforced abstinence of the soldier from all forms of stimulant rendered him rather especially susceptible to its influence as a drug.

Digitalis and strychnine were of the greatest value; in one or two cases gradually increasing doses of the official liquor strychninæ were injected hypodermically, to the extent of thirty minims in the twenty-four hours.

Headache was one of the first symptoms that called for treatment, and five to ten grains of phenacetine generally gave speedy relief, or failing this, a somewhat larger dose of antipyrin. In not a few cases this caused, during the sleep that followed, a profuse perspiration, with perhaps a slight fall in the temperature. Beyond the discomfort of this no ill result followed. In some cases, however, this sweating was so annoying that it became necessary to add 1-100 to 1-150 grain of atropine, which usually stopped it.

Insomnia was one of the most troublesome symptoms, and the cry for hypnotics was a very common one. As a rule, all that was necessary was a small dose of phenacetine, which proved as useful for this purpose as it did for headache. To patient

who were delirious and constantly attempting to get out of bed, hypodermic injections of morphine were given without hesitation, and in considerable doses, such as one-fourth grain repeated several times if necessary.

The care of the mouth and tongue may appear a minor detail. It is not so in the estimation of the patient, and in the severer cases the dry, black, and cracked tongue and lips are more than discomfort—the pain of taking food may positively prejudice the nutrition of the patient. Local treatment may be all that is necessary—mechanical cleansing or the use of mouth-washes; and of these, one containing potassium chlorate, glycerin, and iron perchloride was found to be the most useful. A mixture containing potassium chlorate and sodium bicarbonate given three times a day had a remarkable effect in cleaning and moistening the mouth and tongue, so much so that its use became a matter almost of routine.

Diarrhea is regarded by the author as less a symptom than a complication, and as such requires treatment. In the minds of some it is regarded as an effort of nature to remove deleterious matter, which view is not held by the author, for in all epidemics a considerable if not large percentage of cases have no diarrhea, and these are as a rule favorable cases, whilst among the worst cases diarrhea is most common. This is shown by the fact that out of twenty-nine fatal cases, twenty-one had more or less severe diarrhea. Diarrhea may be due to general enteritis consequent on extension of inflammation from the ulcerated patches to the general mucous surface of the intestine, but it is probably more often caused by an ulceration of the large intestine. There is no doubt that such ulceration is often found in the colon post mortem, very commonly in the region of the cæcum, and in two or three necropsies there was found extensive discrete ulceration of the large intestine, even to the rectum. The treatment of this diarrhea was comparatively simple and undoubtedly of great benefit to the patient. Bismuth carbonate or salicylate and chlorodyne proved the most useful drugs, supplemented, if necessary, by suppositories of one-fourth grain of morphine. In obstinate cases enemas of ten-per-cent boracic acid solution often gave permanent relief, a further hint that the cause of this symptom was in the large intestine.

Tympanites, always a dangerous condition, rarely gave any trouble. It is best treated by boracic injection. A small injection of about four ounces of water containing two grains of quinine and half an ounce of brandy would often cause the patient to pass flatus with great relief.

Hemorrhage occurred in ten cases, on the average of about the eighteenth day. In some it was very profuse, and was repeated two or three times, and was so severe as to cause blanching. It was almost invariably accompanied by a sudden fall of temperature, and generally by a rise in the pulse-rate. In only one was it found after death, not having been suspected during life; with this exception it never proved fatal, and though four of these patients died ultimately, no blood was found in the alimentary tract. Hemorrhage always yielded to, or after, treatment, which consisted of a mixture containing oil of turpentine and tincture of hamamelis, of each half a drachm, and tincture of digitalis three minims. This was given every two hours, or alternately every hour with a drachm of witch-hazel. One physician used witch-hazel alone, a drachm every hour, with apparently equally good results. At the same time morphine suppositories were administered. Under this treatment the stools rapidly ceased to contain bright blood, and in about twelve hours were free from blood altogether.

THE TREATMENT OF TUBERCULOUS PERITONITIS.

Dr. YEO, in *The Lancet* of March 16, 1901, refers to the surgical treatment of tuberculous peritonitis, by which very successful results have been achieved, especially in the early stage and when there is always more or less ascitic fluid in the peritoneal cavity. A practitioner would naturally prefer to dispense with operative procedure if possible, although if he considered it the only means of cure he would certainly recommend it. Dr. Yeo draws attention to a method of treatment which he has tried with success—namely, the application to the abdomen of a liniment containing iodoform or iodine, at the same time administering internally a pill containing iodoform and creosote. He believes that when iodoform is rubbed into the skin of the abdomen in a young person it probably rapidly enters the blood, and is, if regularly applied, continuously eliminated in the secretions, including

the secretions into the serous cavities, and as these do not pass out of the body as the secretion of the kidney does, they must in course of time become richly charged with iodine compounds—at any rate sufficiently so to act as antitoxin to the tubercle toxin or as an antibacterial to the bacilli. This suggestion is a plausible one, and this method of treatment will doubtless receive further and more extended trial. It is a fatal mistake to extol any therapeutic measure that has not passed the ordeal of extended experience, but we shall await with interest the reports of Dr. Burney Yeo and other observers who may adopt the line of treatment suggested by the above theory. It might be found advantageous to use some of those preparations recently introduced in which iodine is combined with a hydrocarbon basis by means of which, it is stated, the drug can be easily applied and is very readily absorbed.

TROPICAL DYSENTERY.

In the *New York Medical Journal* of March 30, 1901, LONG says that in his experience the treatment of dysentery is one of the most difficult problems to deal with, as it requires not only great knowledge of the therapeutical and physiological action of many drugs, but also a practical acquaintance with them and with the technique of administering them per os or per rectum. It requires, also, the knowledge of the different types of the disease. Here comes in the necessity of knowing how to use the microscope and of an acquaintance with the different methods of discovering the bacteria causing the disease. In time of war, and away from civilized countries, our task is often augmented by the physician being thrown on his own resources to deal with all these causes. The question, then, is how to simplify the matter and make our treatment the most valuable possible, using few drugs in a short space of time and under adverse circumstances. It is all right to experiment with new drugs in large city hospitals, but in time of war, or in epidemics, we must cure our patients with routine treatment and as quickly as possible. In the course of his paper the author mentions four drugs that can be obtained in any part of the world, and can be carried with the least possible inconvenience, besides having the sanction of the profession in general.

Eighty per cent, if not more, of the dysentery patients will be cured with one or more of these drugs, while the disease is yet in its infancy. So when we get a case of dysentery or diarrhea a day or two old, the first and right thing is to put the patient at once into bed, giving him an ounce of sulphate of magnesium in half a glass of warm water before breakfast, repeating it the same day if necessary. It is surprising to see how many men will get well soon and report for duty. Calomel, one-sixth, one-quarter, or one-half of a grain, given every hour, until four or six doses have been taken, and followed four hours later with half an ounce of salts, may answer the same purpose, but if there is any doubt as to the cure of the case, we can put the patient on another treatment. We have heard of the miracles as well as the failures of that great drug, ipecacuanha. This drug will often succeed if administered in the following manner: Put the patient to bed, and, while his stomach is empty, administer from fifteen to twenty drops of tincture of opium; then, fifteen minutes later, put an ice-bag on his head, apply a mustard plaster on his stomach, and give a hypodermic injection of morphine, one-quarter of a grain (to give him a chance to sleep), and administer not less than forty grains of ipecacuanha by the mouth; at the same time give instructions to the patient or to the nurse that he is to remain quiet on his back for four hours without moving or taking anything by the mouth, and that, should the saliva increase in the mouth, it is not to be swallowed, but to be spit out. Out of ten patients, it will be found that eight will retain it, and out of the eight who have retained the medicine, only one or two will need a second dose. So, from sixty to seventy per cent will be cured by one administration, from ten to twenty per cent will be cured by a second dose, and twenty per cent will require some other kind of treatment.

This brings us to another class of medicine, namely, bismuth subnitrate. By this is meant that preparation of bismuth only. The other preparations of bismuth have their own place in medicine, but it is not here. The bismuth subnitrate should be given in very large doses, if we expect good results. Forty or sixty grains every three or four hours is a very moderate dose, and if bismuth alone is not enough to check the trouble, then comes the mixed treatment, when the fourth drug steps in—that is, the

great pain-killer, the comfort as well as the pacifier of so many sufferers—opium. This medicine should never be omitted from the list in treating diarrhea or dysenteries, whether acute or chronic. There are several ways of administering it, as with camphor, ipecacuanha, as in Dover's powder, or with Squibb's mixture, etc. The author advocates the administration of forty grains of bismuth subnitrate and five grains of Dover's powder, well mixed, every three or four hours, as the case may indicate. Still another and easy way of administering ipecacuanha—that is, in one-grain or half-grain doses every hour, for two or three days—often gives good results. The first method is considered preferable. It is of no use going astray and trying other methods, such as benzonaphthol, betanaphthol, salicylate of bismuth, bismuth subgallate, etc. All these medicines are good antiseptics, but most of them break up in the animal economy into different compounds and lose their antiseptic value. They have received a good trial, and have been proved inferior to our every-day medicines—bismuth, Dover's powder, and ipecacuanha. Sometimes, if the stomach gets out of order, bicarbonate of sodium in ten-grain doses, combined with bismuth and Dover's powder, acts like magic.

Here the author opens another chapter of treatment which he believes has not yet gained either the confidence or the sanction of the profession at large. There is a great struggle between the two schools, one advocating the internal administration, the other the topical application, of the drugs, either by injections, suppositories, or enemata. The use of enemata has been given a fair trial, and in some cases it is a life-saving treatment which should not be neglected. One now and then comes across cases in which all internal medicines will prove a failure, but which enemata will cure. Here, again, there is some diversity of opinion as to cold or hot water enemata. In a few cases cold water may be the best; but the hot is considered preferable for the following reasons: First, it is a better solvent than cold water; secondly, it is cleansing, clearing the bowels from slime and mucus; thirdly, it is aseptic; fourthly, it is absorbed by the tissues quickly; and fifthly, it is well borne by many. As to what medicines can be used with the enemata, the author prefers, of all the antiseptics and germicides, silver nitrate, twenty grains to the pint, or quinine, for amebic cases, but reminds us of the necessity to clean the bowels of the patient with a soap-suds enema before administering the medicated enema. The knee-chest or dorsal position can be tried. As to instruments for giving the enema, never use a hard-rubber catheter or the bulb syringe, as, when the ulcers are in the rectal region, alarming results may follow. A rubber bag or fountain syringe with a soft-rubber rectal tube attached to it is all that is necessary for the operation. In this connection two more drugs are mentioned that have of late come into extensive use. One is the tincture of the chloride of iron, one drachm to the pint of hot water, mostly used by the English profession in India; and the second, peroxide of hydrogen. In this country the tincture of iron, if tried, will be found to give as good results as nitrate of silver, but peroxide has few advocates. Normal salt solution enemata, laudanum, and starch-water enemata are also good and beneficial.

TREATMENT BY DRUGS OF PARALYSIS AGITANS.

The *Medical Chronicle* for February, 1901, contains an article by WILLIAMSON on this topic. He has tried carefully a very large number of drugs which have been recommended by various writers, and very many which have not been recommended, and often pushing them until toxic symptoms have appeared, but the majority have not produced the slightest benefit. Amongst the drugs found useless, mention is made of arsenic, quinine, potassium iodide and bromide, strychnine, Calabar bean, cocaine, cannabis indica, caffeine, nitroglycerin, atropine, nitrate of silver, tannate of cannabin, butyl-chloral-hydrate, piscidia, chloretone, heroin, dionin, suprarenal extract, and many others. The drugs which have been found to be of decided value in the palliative treatment of paralysis agitans are hyoscine hydrobromate, duboisine sulphate, and hyoscyamine.

Hyoscine hydrobromate is the drug which he has found to be the most useful. It was recommended some years ago by Professor Erb, of Heidelberg, and has been also recommended by many Continental physicians; but in some of the best recent accounts of paralysis agitans in English medical literature the use of hyoscine is not

mentioned. Moreover, a number of writers have recorded that they have not found the drug to be of any service whatsoever. Professor Erb has recommended the drug to be used hypodermically, and thinks its value, when given by mouth, is very much inferior; also by other Continental physicians it is recommended chiefly hypodermically. The English patients suffering from paralysis agitans who have come under the author's care always objected to treatment by any drug given hypodermically day by day; and in such a chronic disease it does appear to be very desirable to give the medicine by mouth, if possible, for many reasons. The puncture of the skin with the hypodermic needle, once or twice daily for months or even years, appears to be very undesirable on account of the risk of septic infection; also female patients usually object to the pain produced by the prick of the needle; and then there is always a greater risk of an overdose of the drug, if the hypodermic injections be left in the hands of the patient's friends. The author therefore commenced the treatment of paralysis agitans some years ago with hyoscine given by the mouth. He gave it in the manner and dose recommended, 1-200 to 1-150 of a grain in a pill, three and afterwards four times a day, for long periods, without any effect. He increased the dose to 1-100 of a grain in pill form, but was never able to detect the slightest benefit. Whitla and others have had the same experience. The author gave up the drug entirely, and concluded that it was useless.

At a later date he again gave it a trial and prescribed it in chloroform water, thinking that it would be perhaps absorbed more rapidly in this form, and that possibly, when given in the form of a pill, the absorption might be too slow to produce any marked effects. Whatever may be the reason of the failure of the drug in the first trial, he was pleased to find a slight but distinct effect when given in doses of 1-96 of a grain in chloroform water. As many writers (including Professor Erb) have recommended that the drug should only be given in very small doses, it was a long time before Dr. Williamson ventured to give it in larger doses than 1-96 of a grain. But in course of time he increased the dose to 1-75 of a grain without any bad effects, and found that this dose was distinctly more efficacious than 1-96 of a grain.

The author states that one of his patients who suffers from paralysis agitans, with all the characteristic symptoms, has taken hyoscine for four years with short intermissions. The dose has only been small, sometimes 1-96, sometimes 1-75, of a grain twice (occasionally three times) a day in two drachms of chloroform water. No bad symptoms have ever been noted. Though the tremor is not arrested by this dose, it is undoubtedly diminished; and the drug also diminishes the general restlessness and constant desire to change position, which is such a troublesome symptom of the disease. Whenever the hyoscine has been discontinued for a few days the tremor and restlessness have always been worse, and it has soon been necessary to return to the drug. The action of the hyoscine in this case has always been most powerful when first commenced; after a time its effect has diminished; but if it has been discontinued for a few days, the effect has been well marked when the drug has been commenced again.

The author has found in his experience that hyoscine not only arrested tremor, but it checked troublesome restlessness and desire to change position; also it caused the unpleasant sensation of heat and the flushing of the face to disappear. When the tremor was most marked there was usually great restlessness and flushing of the face, and a sensation of heat. All these symptoms were diminished or arrested by the hyoscine. The dose required to produce this decided effect was 1-64 of a grain, but this quantity often produced dryness of the throat, which had to be relieved by a little lemon and water. A smaller dose, 1-77 of a grain, diminished the tremor and restlessness, etc., very much, but did not cause these symptoms to disappear entirely; this dose, however, did not cause any dryness of the throat.

A word of caution must be said with respect to the dose and mode of administration, for hyoscine is a very powerful drug. For the reasons already mentioned, the author believes it is best to give the drug by mouth in paralysis agitans. At first the dose should not be more than 1-150 of a grain. This may be increased up to 1-100 of a grain. If no toxic symptoms appear, such as marked dryness of the throat and dilated pupils, the dose may be cautiously increased. Some patients cannot take 1-100 of a grain without toxic symptoms appearing; but in paralysis agitans the dose may often be increased to 1-75, 1-55, or even 1-48 of a grain without bad effects, except dryness o

the throat. But such large doses should only be given when the patient is in hospital, or can be very carefully and frequently watched. In one case the author found 1-64 of a grain by mouth checked the tremor completely; but frequently it was necessary to diminish the dose to 1-77 of a grain for a day or two, on account of the dryness of the throat produced by the former dose. The doses which were most useful in this case were therefore 1-77 or 1-64 of a grain. But the exact dose ought to be determined for each case. It has been the invariable rule with the author to use hyoscine hydrobromate, and he believes that it is the best. It is important to always use the same preparation of hyoscine, as probably the strengths of different preparations vary somewhat. It is best to give the hyoscine well diluted in chloroform water. A prescription which is useful is one-eighth of a grain of hyoscine hydrobromate in six ounces of chloroform water. At first two teaspoonfuls of this may be given, then three, four, or five teaspoonfuls. If necessary, the dose may be increased to six teaspoonfuls (1-64 of a grain) providing toxic symptoms are not produced. The hyoscine is best given in the morning, just after breakfast, and again in the evening, just before going to bed, if the patient is troubled with restlessness and sleeplessness during the night.

Duboisine sulphate was strongly recommended, hypodermically, by Professor Mendel a few years ago. Dr. Williamson has given it a fair trial by mouth in two cases. In one case it had little effect; but in the other case it decidedly diminished the tremor and restlessness, when given by mouth in doses of 1-64 of a grain in water. He has tried it in various doses up to 1-48 of a grain. Its action is similar to hyoscine, but it has not been found so useful as the latter drug. Usually it has not been possible to give more than 1-64 of a grain without producing toxic symptoms. From records in literature it appears that in some cases hyoscine is most useful, in others duboisine; so that both drugs are deserving of trial in every case.

Hyoscyamine sulphate has been tried, beginning with a dose of 1-96 of a grain and increasing gradually up to 1-55. It did not appear to produce dryness of the throat so readily as hyoscine. It diminished the tremor and restlessness, but not so decidedly as hyoscine.

Morphine, opium, and codeine have been found of service by many writers; but in the cases in which these drugs have been tried, if the dose has been small no effect has been produced; if medium or fairly large doses have been given, the usual bad effects of these drugs (constipation, digestive troubles, etc.) have been observed without noticing any relief of the symptoms; and it has not been possible to further increase the dose on account of the patient's objections to the bad effects.

In very advanced cases Heimann, Oppenheim, and others speak favorably of the use of morphine hypodermically for relieving the tremor and subjective symptoms.

Small doses of tincture of veratrum viride have been recommended in Germany; and Oppenheim recommends also tincture of gelsemium. Both have been given a short trial in small doses, but no good result observed.

Sleeplessness is often a troublesome symptom in paralysis agitans at an advanced stage. When the patient has a sleepless night next day the tremor and subjective symptoms are much worse. Hence it is very important to secure a good night's rest as often as possible. There is one little point of practical value—the bed should not be too soft. A patient who suffers from paralysis agitans at an advanced stage has great difficulty in turning over in bed when the position is not quite comfortable, and this difficulty is increased if the bed be too soft. If there is difficulty in getting to sleep, on going to bed a little whiskey and water may be taken, or sulphonal or trional may be given an hour or two before retiring. If the sleeplessness is in the early morning, the sulphonal may be taken immediately before going to bed. A dose of hyoscine is of service in diminishing the tremor and restlessness, and so promoting sleep. Hence as already mentioned hyoscine is often best given twice a day, in the morning and just before going to bed. When the patient is much troubled with sleeplessness in the early morning, a dose of hyoscine taken at this time will often be of service by diminishing the restlessness and tremor and so causing the patient to fall asleep again, or, at least, relieving the subjective symptoms. The exact dose of hyoscine required must be determined by commencing with a small amount and cautiously increasing. The author has often given 1-75 or 1-64 of a grain by mouth in such cases, with much advantage.

Of course, if there is the possibility of a dose being required during the night, it is best to have the exact quantity of the medicine poured into a glass before going to bed and placed by the bedside—to be taken in the night if required.

The bedclothing should not be too warm and heavy.

For the troublesome pains in the limbs, antipyrin or phenacetine is sometimes of service.

QUININE AS AN OXYTOCIC.

According to the *Bulletin of the Cleveland General Hospital* for October, 1901, Professor McGee believes that quinine possesses evident power as an oxytocic, although some authorities question whether this phase of its action exists to any great degree. Giving it in an almost routine manner for years in cases of uterine inertia, he feels confident that it is worthy of trial when such a condition exists. It is doubtless true that it will not initiate labor pains when taken by a pregnant woman, but in the second stage of labor, when an obstacle to delivery is present, and the uterine contractions are deficient in force, it will frequently increase their power, and so hasten delivery. Its effects are without doubt due to a general tonic action and increase of nervous energy, rather than to any such specific power as ergot possesses, but it is devoid of the dangers of the latter, and so is a preferable agent to employ. It can be given with a feeling of safety and generally with satisfaction. The dose of ten grains usually recommended is quite large, and will often occasion vomiting, and five grains can generally be given every twenty minutes or so until about twenty grains have been taken. It is best to give it in solution, as it is more promptly absorbed, and when added to a small quantity of brandy or whiskey, diluted with hot water and well sweetened, is rarely refused. Sugar, as we know, is another agent to which oxytocic action has been attributed, but it probably acts as a rapidly available food, so producing force, and aiding in cases of exhaustion. While the solution of quinine is rather bitter, the patient will generally take it when assured it will benefit her, and by its aid one will often shorten an otherwise lengthy labor without detriment to the child or mother.

The claim has been made by eminent authority that quinine tends to produce postpartum hemorrhage. This, the author states, is contrary to his experience, as he has never seen a case which, in his opinion, could be attributed to it, and, on the contrary, has rather regarded it as a safeguard against such an occurrence. It is indicated most frequently in the inertia of multiparæ, with flabby muscles and a general atonic condition; and hence, with a fairly dilated os and pains deficient in power, quinine is quite effective in increasing their energy and efficiency, and many of this class of cases will readily respond to its action. Idiosyncrasy, middle-ear disease, or cerebral involvement would contraindicate its use, and tinnitus aurium is usually the only unpleasant effect. Should it fail, we still have the forceps in reserve, and as these cases are often lingering and exhausting, it is safer to know that the patient has received fifteen or twenty grains of the drug, for its general tonic effect, as well, perhaps, as for its prophylactic power in diminishing the danger of septic infection. In incomplete abortion, too, its use will frequently be followed by the expulsion of the uterine contents; the general opinion is that ergot under such conditions should not be given, but the author can see no objection to the use of quinine, while after abortion its administration may aid involution, given alone or combined with the usual agents, as ergot, strychnine, or hydrastis.

THE LOCAL USE OF THE NORMAL SALINE SOLUTION.

F. C. Taylor, in the *Bulletin of the Cleveland General Hospital* for October, 1900, reminds us that the value of normal saline solution (six-tenths of one per cent solution of sodium chloride, or roughly estimated, a teaspoonful to the pint) as a therapeutic agent, so far as its internal use is concerned, is too well established to admit of argument. In shock, collapse, either simple or that resulting from excessive hemorrhage, toxemia, etc., it has been and is being used with signal success. In laparotomy every surgeon has noted the marked improvement in rhythm and volume of the pulse of his patient after he has filled the abdominal cavity with a saline solution. The practical value of intra-abdominal, intravenous, intrarectal and subcutaneous administration of saline solution has been es-

tablished beyond question, and by observers of ability and unimpeachable integrity.

The local use of normal saline solution, however, has received but scant mention in literature; it is to this use that attention is called by the author.

Normal saline solution is said to correspond to the fluid portion of the blood—to be the ordinary pabulum of the corpuscles. Investigators have noted after its use the marked increase in the number of colored disks, as well as an increase in numbers and in activity of the leucocytes.

The saline solution, therefore, not only fills the collapsed vessels, in cases of excessive hemorrhage, for instance, and thereby relieves the overstrained heart, but it also stimulates the blood-corpuscles and indirectly the nerve centers.

Assuming that normal saline internally administered stimulates and tones up the corpuscles, is it not reasonable to assume that it may be of value as a local application in many cases where chemical antiseptics are used to-day?

Bichloride of mercury, carbolic acid, formaldehyde, and boric acid, are beyond question antiseptics and germicides, and when applied to an ulcerating or granulating surface they are of undoubted value in destroying the microorganisms present; but while they are destroying the microorganisms they are also destroying the delicate granulations.

Nature has provided an army of defense against septic invasion—the phagocytic power of the leucocytes is admitted by all physiologists. Why not then assist nature—feed and stimulate these fighters and thereby repulse the septic invasion?

The author does not wish to be understood as advocating the entire abolition of chemical antiseptics, but he does maintain that in many cases a more rapid and satisfactory result may be attained by assisting nature—by supplying the white corpuscles with an overabundance of food, without attempting to destroy the infection by "chemical antiseptics."

McBurney (International Text-book of Surgery) says: "It (normal saline) is the only chemical preparation that does not produce irritation when brought into contact with wound surfaces. After its use aseptic wounds may be closed, for the tissues will have suffered no more injury than is caused by the ordinary operative manipulations, and septic tissues, already weakened by bacterial poisons, will be more capable of resisting pathogenic organisms than if exposed to caustic applications."

The author's experience in private practice and in the wards of the hospital, where he has had abundant opportunity of testing the relative merits of the normal saline solution and the various antiseptics, has convinced him that there is a wide field for the local employment of this valuable therapeutic agent. He has seen many times an unhealthy, necrotic surface, after twenty-four hours' saturation in saline solution, change absolutely, the purulent discharge diminish, the unhealthy granulations assume the red hue of health, and beginning cicatrization be most evident. The tissues rapidly absorb saline solution, hence greater care is required than in the employment of corrosive sublimate or similar chemicals in solution.

There is no danger of using too much, but rather the danger of using too little. The wound should be dressed in the ordinary manner—sterilized gauze next to the surface, and over it a thick layer of cotton; this should be thoroughly saturated with saline, and over all placed an impervious covering—oiled silk, rubber sheeting, or something of that nature.

If the denuded surface is large the absorption will be exceedingly rapid, and in an hour or two the dressing will be found to be practically dry. Hence the solution should be added frequently and in large amounts. The protection can be easily opened and fresh saline poured on without disturbing either the patient, the dressing, or the wound's surface. It is probably needless to say that the solutions should be sterilized. In itself saline has absolutely no germicidal power—it acts indirectly by increasing the resisting power of the tissues.

The application of normal saline solution to burned surfaces has been advocated, and the author's experience satisfies him that in this employment it is the agent *par excellence*. The relief from pain is almost instantaneous, the convalescence is rapid, and the resulting cicatrix is slight compared to the amount of damage to the tissues and to that found after the employment of any other therapeutic agent with which he is familiar.

THE TREATMENT OF EPILEPSY WITH OPIUM AND BROMIDE.

The essential nature and the intimate pathology of epilepsy are as yet not understood, and we are still without a specific or invariably successful method of treatment. In fact, all of the remedial measures at our command can be said to be only palliative, as even when the attacks have remained in abeyance for long periods of time, definite assurances of cure cannot be given. In all cases distinct good can be accomplished by a careful regulation of the diet and the mode of life, and among drugs there is none, intelligently used, that seem so efficient as the bromides. The latter, however, by no means always bring about the desired result, and even when they lessen the number and the severity of the attacks, their use is not wholly unattended with unpleasant effects, and their influence may after a time be lost. Inasmuch as physiological as well as pathological activity, like all other forms of force, is expended along lines of least resistance, one is at times justified in taking radical steps for the purpose of breaking up what may be designated as the convulsive habit.

Within recent years a combination of opium and bromide, with various accessories, has been proposed in the treatment of epilepsy, but there has been some want of agreement as to the results obtained therewith. Meyer and Wickel report a small series of cases thus treated, in which the severity of the attacks was mitigated and both the physical and mental condition was improved. The underlying principle of the plan pursued consists in a gradual increase in the dose of opium, but not beyond fourteen grains daily; in careful regulation of the diet; and in applications of cold water. Whether the patient has previously taken bromide or not, the treatment is begun with doses of three-fourths grain of powdered opium thrice daily. This dose is increased to one-sixth grain on the third day, an additional one-sixth grain on the fifth, and so on until, on the fifty-first day, the daily dose will be fourteen grains. This maximum dose is given for but one day, being replaced on the following days by a mixture of bromides—potassium bromide, 15 grains; ammonium bromide and sodium bromide, each 7½ grains—in doses of 30 grains thrice daily for two days; then 35 grains for two days, 40 grains for two days, and thereafter 45 grains thrice daily.

From the beginning a dilute solution of hydrochloric acid—1.5 to 200—is given thrice daily after meals in doses of a teaspoonful. In the diet, alcohol, coffee, tea, bouillon, sausage, acids, and strongly spiced articles, mustard, pepper, vinegar, and all spices are forbidden, and salt is restricted to a minimum. Meat is permitted in small amount and the patient is encouraged to take demulcent soups, eggs, rice, etc., and if constipation be present, fresh vegetables. The diet must be regulated somewhat by the surroundings and the circumstances of the patient. During the first period of bromide administration, cocoa, eggs, and scraped meat may be added.

From the first day of the period of opium administration a cool bath is taken in the evening before eating, at first at a temperature of 86° for ten minutes, and reducing the temperature 2.25°, and the duration of the bath one minute, daily until a temperature of 70° and a duration of three minutes are reached. The baths are thus continued for a week; then, with the same temperature, but for four minutes, for another week; next at the same temperature for five or six minutes. In the first week of the period of bromide administration the bathing is intermitted, then being resumed at 86° for ten minutes and following the course already laid down. Every third day the patient is weighed, and pulse, temperature, and respiration carefully observed. The bowels must be kept regular by means of enemata, infusions, abdominal massage, but not purgatives; besides, note is taken of the number of attacks and of other details of the patient's condition.

The most important contraindications for the treatment are serious impairment of the nutrition and weakness of the heart. The number of attacks is not diminished during the period of opium administration; it may even be increased. Subsequently, however, the attacks become less frequent, and during the period of bromide administration they cease altogether. The mental state also exhibits distinct improvement. The treatment is to be continued by the administration of large doses of bromide—if possible, two drachms daily—for at least a year, with a tablespoonful of the solution of hydrochloric acid (1.5 to 200) thrice daily, and the same diet as was used during the period of opium administration, avoiding especially alcohol, tea, coffee, spices, and meat beyond moderation. A quiet mode of

life and avoidance of physical and mental excess, especially excitement, are further conducive to the success of the treatment.—*Journal of the American Medical Association,* March 9, 1901.

THE CONTROL OF COUGH IN TUBERCULOSIS.

This important subject is written about by LALESQUE in the *Journal de Médecine de Bordeaux* of March 10, 1901. He believes that it is extremely important that the patient should to a certain extent control the cough by voluntary means rather than by the continued administration of cough sedatives, and suggests that the patient should make it a rule that there should be no cough without expectoration, because often the cough is a reflex phenomenon due to irritation, or, in other words, is a form of brusque cough which when frequently repeated exhausts the patient without any result. In some instances, of course, it is exceedingly difficult for the patient to voluntarily control the cough, and when the lungs are filled with secretion and broken-down material it is manifestly necessary that a certain amount of cough should occur in each twenty-four hours in order that septic absorption from retained sputum shall not take place. Lalesque points out that it is rather curious how patients can be trained in regard to their cough and expectoration; that in some instances by a process of training cough can almost entirely be put aside, and the patient become so skilful in bringing up sputum that not infrequently expectoration and a clearing of the lungs is accomplished without prolonged exhausting cough. As we have already pointed out there are some cases in which it is impossible for the patient to control the cough, but there are others in which the cough habit seems to be to a certain extent established, and for such a certain amount of training is certainly advisable.

THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM BY PUNCTURE OF THE JOINT AND INJECTION OF CARBOLIC ACID.

In a report in *La Semaine Médicale* of February 13, 1901, ZAGATO is said to have recently employed injections into the joints in the treatment of acute articular rheumatism. This Italian physician, having tried without success the hypodermic injection of opiates and salicylate medication, proceeded to extract the liquid which had accumulated in the joint by tapping in order to relieve the patient of pain which was in part due to the distention of the joint. This was, of course, done under the most careful antiseptic precautions. After this, by means of a long hypodermic needle he injected a two-per-cent solution of carbolic acid in water —the quantity of solution being one cubic centimeter (15 minims). After the withdrawal of the needle, he stated that the patient was able to move the joint without suffering much pain. He also used massage following this injection, and enveloped the part with hot compresses wet with a solution of salicylic acid. He states that under treatment carried out in this way the patient was almost entirely relieved of pain, and that in the space of three or four days all the morbid symptoms in the right knee-joint disappeared. A short time afterwards the left knee became affected, and the same treatment was carried out with equally good results. The liquid ought to be withdrawn from the joint by means of a very fine syringe, and in his experience was clear, absolutely inodorous, and the color of olive oil.

THE EMPLOYMENT OF HEROIN IN THE TREATMENT OF PAIN.

This comparatively new derivative of morphine, which has been used so largely for the control of cough, has also been employed to a certain extent for the relief of pain; and it is claimed by ARTAUD in *Lyon Médical* of March 10, 1901, that its use in many cases renders the same service as does morphine, its influence often lasting for as long a period of time, and possessing the advantage that it does not disturb the digestive tract. In one instance in which the patient was suffering from severe acute left sciatica, he found that its hypodermic use resulted in the rapid diminution of pain after the first injection; after the second it was still more diminished; and after the third it entirely disappeared. The doses which he gave amounted to about 20 minims of a one-per-cent solution of heroin hydrochloride, and the first evidences of its good effects were produced within five or six minutes after the injection was given.

THE TREATMENT OF HEMOGLOBINURIC FEVER.

McELROY states in an article in the *Memphis Medical Monthly* for March, 1901, that in his view the procedure which seems to offer the best results is to withhold quinine. Seldom is any antiperiodic indicated. When diarrhea is absent, which is usually the case, give calomel in ten-grain doses at intervals of three hours for three doses. This, it is believed, relieves the symptoms due to polycholia better than anything else. If the calomel does not produce bilious, tarry stools in the proper time, assist its action with hyposulphite of sodium. If the nervous symptoms are distressing and the vomiting harassing, morphine hypodermically affords the best relief, but many regard it as absolutely contraindicated in these cases. Stimulate the heart when weak, which is usually a condition present at some period of the attack. Plenty of water, with the citrate of potash and sodium bicarbonate as a diuretic, should be given. Stimulating diuretics should be withheld. Promote the action of the skin. With the first appearance of oliguria, the safest procedure is to apply dry cups to the loins, follow with poultices, and administer normal salt solution hypodermically; this is preferable to intravenous injections. The author has for some time used this measure, for which he claims no originality, with better results than any other.

In the *British Medical Journal* of September 8, 1900, an abstract of Dr. Paul Gouzein's paper read before the International Medical Congress recently at Paris is given which the author quotes as worthy of trial. Dr. Gouzein's rule of practice is as follows:

If at the end of twenty-four hours of hemoglobinuria the urine shows no tendency to clear, and the temperature is not above 39° C. (102⅕° F.), a first injection of from 100 to 300 grammes of artificial serum (7 grammes of sea salt to 1000 of water) should be given in the thigh. This is given with the idea of stimulating and maintaining the vital energy during the time necessary for corpuscular repair and the restoration of functional equilibrium. Each injection should last from five to fifteen minutes. Ordinarily it is well borne. In cases of moderate severity, Dr. Gouzein also uses with advantage small enemata of the serum of 200 grammes each in the twenty-four hours. He has also employed with much success an infusion of Ahouandeme, the name given by the natives of Dahomey to the *Cassia Occidentalis* L. Whether the preparation acts solely by virtue of its diuretic, diaphoretic, and cholagogue properties, or whether it has a specific action on the pathogenic agent, is at present unknown. In some cases it acts almost at once, the urine clearing and being increased in quantity, with copious stools followed by rapid convalescence. The recognition of the good effects of the plant has led to its widespread cultivation in the colony. From January, 1897, to the end of March, 1900, Dr. Gouzein has treated fifty-three cases of bilious hemoglobinuric fever without a single death.

THE ACTION OF OPIUM ON THE STOMACH.

In *La Semaine Médicale* of February 20, 1901, LEPINE, professor of clinical medicine of the Faculty of Medicine at Lyons, contributes a short article upon this subject. He begins by pointing out that for many years it has been the custom to administer one of the opium preparations in the treatment of the pain of gastralgia, but that more recently it has been thought that the administration of this drug augments the acidity of the gastric juice. He then goes on to quote a considerable number of authors who, he believes, support this view, and states that when the gastric pain is due to a hypersecretion of hydrochloric acid, opium is not the remedy of choice, but that atropine, or one of the drugs closely associated with it, is the drug which should be employed for the relief of the pain. It will be remembered that morphine is largely eliminated from the gastric mucous membrane, and it is perhaps possible that the increased activity of this membrane in the process of elimination is associated with a distinct increase in the secretion of gastric juice.

HEMATOPORPHYRINURIA FOLLOWING CHLOROFORMIZATION.

According to *La Semaine Médicale* of February 20, 1901, NICOLAYSEN has recently reported in one of the Scandinavian medical journals the case of a young woman of twenty-nine years who after an operation, during which she took forty grammes of chloroform, developed hema-

toporphyrinuria. The urine did not contain either sugar or albumin, but there were some cylindroids. The hematoporphyrinuria disappeared in about a week; but for about three months after the operation there was marked urobilinuria. The nature of these two substances was determined by spectroscopic examination. Nicolaysen supposes that the condition resulted from the active breaking down of blood coloring matter in the liver, which in turn was largely dependent probably upon deficient oxidation, and this was again dependent upon diminution in the activity of the heart.

THE TREATMENT OF DELIRIUM TREMENS BY THE INTRAVENOUS INFUSION OF SALINE SOLUTION.

WARBASSE contributes to the *Medical News* of March 2, 1901, the following interesting remarks:

The disease under consideration is characterized by autointoxication. A chronic degeneration of the glandular structures of the body results from the prolonged use of alcohol. Particularly when the whole organism suffers the shock of traumatic injury, the secreting and excreting structures, by virtue of these degenerative processes, become disturbed in their functional equilibrium and a toxemia results. The identity of the peculiar toxins of delirium tremens has not been determined. It must be assumed, however, that these toxins are in part waste materials which are dependent upon the emunctory organs for their elimination, and in part the so-called internal secretions of organs, which in the normally balanced organism play a physiological rôle. Delirium is characterized by the action upon the nervous system of these products, which, by virtue of the pathological conditions present, fail to become eliminated, absorbed, or neutralized.

In the majority of these cases the natural resources of the system are sufficient to overcome the toxemia, and the glandular equilibrium becomes restored. In a certain class of cases the intoxication is fatal, even in the presence of kidneys which are able to excrete an adequate amount of urea.

The great value of intravenous salt infusion in cases in which the blood contains a profoundly poisonous amount of toxic substance has led the author to apply this method of diluting and hastening the elimination of the poison in the extreme intoxication of delirium tremens. This opportunity is taken to place on record the following experience, occurring in the service of Dr. Pilcher in the Methodist Episcopal Hospital in Brooklyn: The patient was a man, thirty years of age, a habitual drinker of whiskey. The urine showed the evidences of but a very moderate degree of urea-eliminating derangement. He suffered a fall from a wagon, sustaining a contusion of the right side of the chest and abdomen and a slight wound of the scalp, with transient cerebral contusion symptoms. He regained full consciousness in about an hour. The first symptoms of tremor appeared a few hours after the injury. This continued in a slight degree until the third day, when the temperature rapidly rose to 104.2° F., and the patient became profoundly overwhelmed with the disturbances associated with a violent attack of delirium tremens. The pulse became rapid and weak, and on the fourth day the temperature was 105° F. Until this time sedatives and the routine treatment for delirium tremens had been employed, together with alcohol sponging for the fever. On the fifth day his general condition was still worse. The heart was weak and rapid. The skin was cyanotic and bathed in cold perspiration. The delirium was of the low muttering type, and the general picture was that of a case profoundly overwhelmed with some virulent systemic poison, which promised to terminate fatally within thirty-six hours. At this stage an infusion of 1200 cubic centimeters (40 ounces) of saline solution at a temperature of 116° F. was introduced into the median cephalic vein. The change that came over the patient was a most striking one. The circulation rapidly improved, the delirium subsided, and the patient regained consciousness, all within a few hours. On the day following the temperature had subsided to 99.6° F., and the complete recovery was rapid and uneventful. The changes in this case were so rapid and striking that it seemed like a resuscitation.

The infusion in such cases as this accomplishes the following things: It increases the amount of the circulating medium in which the toxic materials are dissolved, thereby diluting the poison and bathing the nerve centers with a more attenuated solution of the same. The amount of circulating fluid is increased above the normal, so that the excretion of fluids through all the fluid-excreting channels is increased, there-

by carrying off in solution much of the contained toxins. The action of the heart is improved by the filling of the relaxed vessels. These suffice to restore the physiological equilibrium and turn the balance in the favor of recovery. Thus we may add indefinitely to the uses of this most valuable therapeutic measure.

INOCULATION AGAINST ENTERIC FEVER

The general results of a statistical comparison between the inoculated and uninoculated British soldiers serving in India, so far as an experimental trial has been made of Professor Wright's method of inoculating against enteric fever in that country, are stated to have been distinctly in favor of the inoculated. The results are, at any rate, sufficiently favorable to indicate that a further and more extended trial of this system of treatment should be made. An interesting communication from Professor Wright published in *The Lancet* of February 9, p. 399, furnished the results of an officially compiled statistical statement dealing with the effects of antityphoid inoculations in the case of one corps—the 15th Hussars. From this statement it appears that the incidence of enteric fever in the inoculated is represented as 0.55 per cent and the mortality 0.27 per cent, while the incidence in the uninoculated is 6.14 per cent and the death-rate 3.35 per cent. Although these figures are drawn from a comparatively limited number, it will be seen that so far as they go they are very favorable to inoculation.

Inoculation against enteric fever has also been largely resorted to among the troops serving in the South African war, and the publication of the returns showing the results is anxiously awaited, and should soon, we imagine, be forthcoming. The two sets of observations—those from India and those from South Africa—should furnish data for estimating the influence of inoculation in lessening the soldier's liability to contract, or to die from, this form of fever, and it is quite possible that the returns from South Africa may turn out to be the more valuable of the two. According to official reports extending over many years it seems to be, statistically speaking, a well established fact that the susceptibility of British troops under a short service system to contract enteric fever in India is most marked during their first and second years of service in that country, and notably during the first year. In the report of the Sanitary Commissioner with the Government of India for 1898, for example, we find that the ratio of mortality from enteric fever per 1000 of strength was greatest in the age-period 20 to 25. As regards residence in India, the ratio of mortality from enteric fever per 1000 of strength was highest in the first year of residence. The total number of deaths from enteric fever in the first year of Indian service was 236, and 70 out of every 100 deaths from all causes were from enteric fever. Out of the total number who died at all periods of residence from enteric fever forty-one per cent were in their first year of Indian service. These general results are, moreover, only confirmatory of those which have long been set forth in the official reports of former years. It may be pointed out, therefore, that any preponderance of soldiers in their first year's service on one side or the other—inoculated or uninoculated—might prove very misleading.

The figures showing the results of inoculation might not be fairly representative of the advantages it confers where the subjects of inoculation were mainly composed of the class most susceptible of being attacked by enteric fever; on the other hand, the figures might unduly exaggerate the advantage where the least susceptible happened to form the majority of the inoculated class. It is highly probable, of course, that the troops serving in India have not been in any way specially selected, but have been taken indiscriminately and as a mere matter of convenience, as they voluntarily offered themselves for inoculation; in which case there would be no such disparity between the inoculated and uninoculated as would practically affect the results of a comparison being made between them. The returns obtained from the troops serving in South Africa will not be open to any fallacy of this sort. The aggregate number of troops is very large; they are, or were, nearly all of about the same length of service in that country—that is, in their first year—and have all been subjected to the same or very similar conditions. The troops that came from India may, it is true, have already paid their tribute and have acquired immunity owing to their having been previously attacked with enteric fever

whilst resident in that country, but the Indian contingents form no preponderating part of the army in South Africa. When all the figures bearing on inoculation against enteric fever and derived from observations made upon the army in South Africa are forthcoming we ought to have a good guide to the value of the treatment.

Supposing the protective influence of inoculation against enteric fever to be established as the result of these investigations, there still remains several points that will have to be determined before it can be generally applied as a practical measure—for example, the degree of immunity which it confers and for what length of time it confers it. It need scarcely be said that the subject is not merely one of scientific or medical interest. It is devoutly to be wished that the evidence of figures and experiments, with which we have yet to be furnished, may prove sufficient to put the value of inoculation against enteric fever on a secure basis as a scientific and successful method of therapeutics. If this should turn out to be the case, Professor Wright will have conferred an inestimable boon not on the British army only but on humanity in general.—*The Lancet*, Feb. 16, 1901.

ON THE USES OF FORMALIN IN GLYCERIN.

In the London *Lancet* of February 16, 1901, JORDAN tells us that as formalin is so powerful an antiseptic its use for clinical purposes has tempted many, but in every case, so far as is known, the attempt has been abandoned on account of the irritating nature of formalin and the pain which its use has involved. It has been found that this difficulty can be to a great extent overcome by using glycerin instead of water as the medium by which to convey the formalin to the required part. For ten months the author has used a mixture of formalin in glycerin, from one to four per cent. Although the mixture will keep without much diminution in strength for several weeks in a well-stoppered bottle in a cool place, it is better to prepare it fresh for use each time by mixing from one and a half to five minims of formalin with two fluidrachms of pure glycerin. This preparation is useful in at least four different ways: (1) as an application to the throat; (2) as a mouth-wash; (3) as an application to the skin; and (4) as a urethral injection.

1. *As an Application to the Throat.*—An ordinary pharyngeal brush is employed. A single application can be absolutely relied upon to kill every microorganism with which it comes in contact. Bacteriological examinations prove this. The glycerin spreads readily over the surface beyond the immediate limits of its application; it conveys the formalin into the follicles of the tonsils and into the deep layers of the mucous membrane. In follicular tonsillitis in the early days, when there are no deep collections of pus, formalin in glycerin (two, three, or four per cent) is a specific. After a single thorough application the temperature falls to normal within a few hours, and remains normal. The application is usually attended by a little soreness lasting only a few hours. For from half an hour to an hour after the treatment the patient should not be allowed to drink, the formalin being left undisturbed to exert its bactericidal action. After this, a simple gargle, such as chlorate of potash, is all that is necessary. In diphtheria, in cases where the membrane is confined to the pharynx, formalin in glycerin is equally successful. In most cases, however, there is membrane in situations inaccessible to a brush, as in the nares or in the air-passages. In such cases formalin in glycerin is of little use. In scarlet fever, where the throat condition is but a small part of a general disorder, one cannot expect much good from formalin; but even here two per cent of formalin in glycerin every second or third day is certainly as good as any other local application of which we have knowledge.

2. *As a Mouth-wash.*—In aphthous stomatitis and in parasitic stomatitis (thrush) a single application of formalin in glycerin, two per cent, should be made, and followed by the use of the glycerinum acidi borici of the British Pharmacopœia. In ulcerative stomatitis a single application does not appear to do much good, and it is not certain that formalin always accelerates the healing of the ulcers to an appreciable extent. Combined with iodine and with B eucaine (the latter as a local anesthetic), in the following proportions, a useful mouth-wash is afforded: One per cent of formalin, two per cent of iodine, and two per cent of B eucaine, in glycerin.

With this and the internal administration of chlorate of potash good results are obtained. In gangrenous stomatitis (cancrum oris), while not having an opportunity of trying formalin, the author believes that at the commencement four-per-cent formalin in glycerin might penetrate sufficiently deeply to put a stop to the disease. Tuberculous ulcers of the pharynx, mouth, tongue, and lips, occurring as they do in the broken-down subjects of advanced phthisis, are never hopeful cases to treat. They are always liable to reinfection from the lungs, and therefore repeated applications are necessary. But these repeated applications are not well tolerated on account of the great tenderness of the ulcers. In one case of tuberculous ulcer of the lower lip four-per-cent formalin in glycerin was applied very thoroughly twice a week by previously placing in contact with the ulcer a piece of absorbent wool soaked in B eucaine four per cent. In the intervals the ulcer was protected as far as possible by boric ointment. Considerable improvement occurred at the end of a fortnight, but the patient was not kept under observation.

3. *As an Application to the Skin.*—Formalin may be thus employed in all parasitic diseases, but especially in tinea tonsurans (ringworm). The whole area is thoroughly cleaned by turpentine, followed by soft soap and water to remove grease, and four-per-cent formalin in glycerin is rubbed carefully in by means of a piece of lint soaked in it. If there is much inflammation a piece of lint soaked in the formalin and glycerin is simply applied to the surface and left so for a few hours, protected by a layer of wool. This application never requires to be repeated. A little boric or zinc ointment or lead lotion will complete the cure in a few days. This treatment, in the experience of the author, has never been known to fail. Some cases of lupus ought to be readily curable by a few applications of four-per-cent formalin in glycerin on lint, but this important point has not as yet been tested.

4. *As a Urethral Injection.*—In one case of acute gonorrhea one and one-half drachms of one-per-cent formalin in glycerin was injected, with the result of completely and permanently curing the case. But for three days after the injection there were considerable pain and difficulty of micturition, due, no doubt, to swelling of the mucous membrane. For this reason the author is not confident in recommending its general use as a urethral injection.

Other uses of formalin in glycerin will doubtless suggest themselves to the reader.

A REPORT OF THREE CASES OF THORACIC ANEURISM TREATED BY SUBCUTANEOUS INJECTIONS OF GELATIN.

After detailing three cases treated by this method in the *Medical News* of March 16, 1901, CONNER tells us that of the three cases two received three injections and one seven. In two cases the injections had to be discontinued because of the severe local pain. In the third the pain was only slight. In one case, that receiving seven injections, a very slight improvement could be detected. In one case a slight increase in symptoms was noted, while the third case died of rupture of the aneurism while under treatment, and the autopsy showed no evidence of recent thrombus formation, although the condition, that of a large sac with a small communication with the aorta, was an especially favorable one for clotting. Aside from the pain and local irritation no untoward symptoms were observed in any of the cases as a result of the injections. No conclusion is reached from these cases that the method has no therapeutic value, since in none was it possible to carry out the treatment fully. Lancereaux believed, however, that he could see very distinct improvement even after a single injection. Certainly no such satisfactory result was apparent in any of the present cases. Futcher gives his results in nine cases as follows: While no case was cured there was a considerable diminution in the size of the aneurism in one, and in several others an appreciable reduction in the subjective symptoms referable to pressure. He believes the treatment to have some merit. Futcher also found that the injections were frequently very painful and were followed by local reaction, fever, and even chills.

It must be remembered that the administration of twenty injections would consume approximately five months of time, and that during this period the patient must be kept absolutely quiet in bed. Rest in bed for such a length of time would of itself in many cases produce a distinct amelioration of the subjective symptoms,

and even some improvement in the physical signs.

These cases at least are convincing that whatever the curative value of the treatment, its usefulness is seriously impaired by the severe pain which frequently follows the injections.

TREATMENT AFTER ABDOMINAL OPERATIONS.

In the *Clinical Journal* of March 13, 1901, BIDWELL gives the following important rules for these cases:

Management of the Bowels.—In abdominal operations, not only is it advisable to clear out the intestine thoroughly before the operation, but the bowels should not be allowed to become constipated after the operation. Especially when nutrient feeding is employed is it necessary to wash away the unabsorbed residue each day. In every abdominal case our wish is to prevent any stasis of the intestinal contents due to the temporary paralysis of peristaltic action by exposure, or the application of irritating antiseptics, and we must use every endeavor to reestablish the normal peristalsis as soon as possible.

At this point attention is drawn to the condition known as pseudoileus, which is a form of intestinal obstruction brought about by paralysis of the gut from exposure or injury, and is often combined with the formation of adhesions in such a position as to cause a kink. The condition is naturally not common after operations on the stomach, as the lower part of the small intestine is seldom exposed; it is, however, fairly common in operations on the lower part of the abdomen. It has often been confused with peritonitis, and has led to the supposed cure of peritonitis by purgatives; there are, however, no signs of peritonitis post mortem in fatal cases. Pseudoileus differs also from other intestinal obstruction by its rapidly fatal course if unrelieved, death being probably due to the migration of the bacillus coli communis from the paralyzed gut into the peritoneal cavity, and by the absorption of its toxins therefrom. In order to guard against this condition, which arises from paralysis of the gut, as well as for other reasons, our aim must be to reestablish the normal peristaltic action as quickly as possible. The first means by which we attempt to do this is by the passage of a flatus tube about four or five inches up the rectum every four hours, immediately before each nutrient injection is given; this enables the gas to be expelled by the enfeebled peristaltic contraction, which would otherwise not have sufficient force to conquer the resistance of the anal sphincter; early feeding, too, will help our object, and hot fluids by the mouth, together with the avoidance of ice, and of milk, are more conducive to the production of peristaltic action than starvation and ice. The most important point, however, is to obtain an early action of the bowels by means of an enema. This should be given on the second or third day after the operation, and may contain some purgative drug in addition (a list of some of the purgative enemata is given below). Some surgeons recommend a purge as well: thus, Spencer gives calomel on the second day, but the author relies first on the action of enemata, and gives a purge by the mouth only if the enemata are unsuccessful. In such a case he gives two grains of calomel, followed by an ounce of mist. sennæ co. or a pill containing calomel and colocynth, or an ounce of mistura magnesii carbonatis and magnesia sulphate, to be repeated every two hours. In cases where aperient medicine cannot be given by the mouth in consequence of vomiting, and no result has followed a simple enema, we must rely upon the use of purgative enemata, the most useful of which are the following:

1. Ol. ricini, turpentine, ää 1 ounce, in 10 ounces of thin gruel.

2. The British Pharmacopœia enema terebinthinæ, containing 1 ounce of turpentine to 15 ounces of mucilage of starch. Both these preparations, however, are rather strong, and the author usually employs an enema of one pint of gruel containing one to two drachms of turpentine.

3. Enema sulphate of magnesia (or enema catharticum, B. P.): Sulphate of magnesia 1 ounce, olive oil 1 ounce, mucilage of starch 15 ounces.

4. Enema of aloes (B. P.): Aloes 40 grains, carbonate of potash 15 grains, mucilage of starch 10 ounces.

5. Enema of colocynth contains extract colocynth ½ drachm, soft soap 1 drachm, water 1 pint.

6. Enema of glycerin one to two drachms injected undiluted, or in the form of a suppository. This latter, however, is

not of much use immediately after an operation, and may cause tenesmus.

A good number of cases of operations on the stomach never require any aperient, and the bowels act naturally on the second or third day; in some cases also the other extreme is reached, and very troublesome diarrhea follows, which has caused a fatal issue in several cases without leaving any signs at the post-mortem. In such cases the amount of liquids given should be diminished, and tincture of opium must be administered by the mouth, and the stomach washed out; this will usually suffice to stop the diarrhea.

Rectal Feeding.—As some amount of rectal alimentation is required in most abdominal operations, and in nearly every one on the stomach, some account of the best form of carrying this out will be useful. In the first place, before commencing nutrient enemata it is best to thoroughly wash out the bowel with normal saline solution; this must be repeated each day to remove the débris. The patient should be lying on his back, and should not change his position for some time after the injection. The best method of introduction is to use a soft-rubber rectal tube the size of a No. 12 or No. 14 catheter, which should be passed about six inches up the rectum; connected with the tube is a funnel, which should be raised two feet above the bed. This is better than a syringe, since the fluid will flow more evenly and slowly into the rectum, and so is more likely to be retained; the risk of forcing in air, too, is diminished. The whole enema should not exceed six ounces in bulk, and in some irritable rectums only three or four ounces should be given; it should be of a temperature of 100° F., and should be given every four or six hours. Practically only substances in solution can be absorbed from the rectum, so unpeptonized milk or beef tea is useless; stimulants, such as spirits, wine, tea, or coffee, are most readily absorbed, but extractives and peptones are also of value. The necessity of giving digested meat has been recognized for a long time, but the process of preparing the enemata has been much improved by the introduction of the various peptonizing and zyminising powders now on the market. The older enemata were prepared with fresh pancreas. The following are a few of the best:

1. Von Leube's: Five ounces of finely scraped meat is chopped very fine, and to this is added one and a half ounces of finely chopped pancreas; the whole is suspended in three ounces of lukewarm water, and stirred to the consistence of a thick pulp. This makes one injection.

2. Mayet's: 150 to 200 grammes of pancreas is bruised in a mortar with tepid water at a temperature of 100° F., and is then strained through a cloth; 400 to 500 grammes of lean meat is chopped fine, and the strained pancreatic fluid is mixed with the mince, together with the yolk of one egg. This is allowed to stand for two hours, and administered at the body temperature; the quantity is sufficient for twenty-four hours' nourishment, and should be administered in two parts.

3. Rennie's: Half a pound of lean meat is pulled into shreds and added to a pint of beef tea; to this is added one drachm of fresh pepsin, and half a drachm of dilute hydrochloric acid; the mixture is kept at a temperature of 99° F. for four hours, during which it is stirred constantly. If too great heat be employed the digestion will stop.

4. The enema which the author employs is made as follows: Milk 2 ounces, strong beef tea 2 ounces, yolk of egg 1, pancreatic solution 1 drachm. This is to be prepared one hour before use, and to be kept at a temperature of 100° F. One-half to one ounce of brandy is added, when necessary, immediately before use.

5. Terrier and Hartman recommended the following: Peptones 20 grammes, infusion of tea 100 grammes, benzo-naphthol ½ centigramme, tincture opium 5 minims. Four of these are given during the twenty-four hours.

6. Greig Smith: One egg is beaten up in six ounces of milk, and two or three teaspoonfuls of meat jelly or peptones added. This is administered warm with or without half an ounce of brandy every five or six hours.

7. Hunter Robb: Peptonized milk 1 ounce, whiskey ½ ounce, the whites of two eggs, common table salt 14 grains.

Nutrient suppositories are also used when the rectum is intolerant of injections, or they may advantageously be used alternately with them in cases requiring several days' rectal feeding. If used alone they must be supplemented by an injection of about half a pint of hot saline solution once or twice a day. The suppositories are usu-

ally made of peptonized beef, a chocolate-colored paste, which is prepared by digesting beef with acidified fresh gastric juice, and then concentrating the solution. The suppository contains thirty grains of this, and is stiffened with cacao butter. These suppositories are made by most wholesale chemists, and keep for only a short time after the box is opened. It is best to use them as freshly prepared as possible.

Lastly, Sansom has recommended the use of blood as an enema. Ox blood is usually employed, and must be defibrinated first; this can be got from a butcher by asking for whipped blood. It must be fresh, and will not keep more than one day. By the addition of one and a half grains of chloral to one ounce of blood all offensive odor is prevented. It is usual to inject two or three ounces of blood every two or three hours.

In cases where rectal feeding has to be continued for any length of time it is well to change the composition of the enemata, since the rectum does not appear to retain any one kind of enema after a time. If, too, the rectum be irritable, two or three minims of tinctura opii should be added to each enema. Some surgeons also add some disinfectant to each enema, either betanaphthol or salol; from two to five grains of each can be given. Alcohol also acts as a disinfectant, as well as a stimulant, so this is an additional reason for adding either brandy or red wine, as suggested by Ewald.

Lavage.—If vomiting and eructation continue after the second day, and especially if at the same time the temperature be elevated, the mouth dry, and the tongue sticky and coated, it is almost certain that there is some decomposition of the stomach contents. If these contents be allowed to remain in the stomach, they will probably produce a fatal issue, either by setting up diarrhea, by keeping up vomiting, or by absorption of toxins. It is very important that they should be removed at once; to do this a stomach-tube must be passed, and the stomach thoroughly washed out with some antiseptic, such as salicylic acid, followed by plain boiled water, which must be continued until the fluid returned is quite clear. Feeding must be recommenced immediately after the lavage, as this will be a favorable time for the absorption of some nourishment. The lavage must be repeated on the next day if vomiting or eructation continue. In some cases it may require to be done daily for five or six days.

Some hesitation might be felt at passing a stomach-tube forty-eight hours after suture of the stomach, and injecting water to wash out its contents, since this might place a strain on the stitches; however, it is far better that a suture should undergo a slight strain than that it should be soaked in a putrid liquid; besides, the wound in the stomach is firmly sealed at the end of forty-eight hours, and will practically be as water-tight then as it will ever be. The lavage, of course, must be done gently, the patient lying on his back, and the fluid introduced by means of a funnel which must not be more than three feet above the patient's head; it is removed by siphon action, not by expression.

Mouth and Teeth.—Before an operation special attention was drawn to the importance of rendering the buccal cavity as aseptic as possible, so also after an operation on the stomach this point is still worthy of remark. The teeth should be gently brushed with some antiseptic tooth-powder at least twice a day, commencing on the day after the operation, and the mouth rinsed out with boric solution, or with peroxide of hydrogen. All accumulation of food and sordes should be removed from the gums and teeth by means of a small piece of wool soaked in dilute carbolic or boric lotion. Attention to the state of the mouth is of importance not only in preventing decomposition of the stomach contents, with consequent vomiting and diarrhea, in preventing septic bronchopneumonia, which has been a fruitful cause of death after stomach operation, but also in preventing the formation of a parotid bubo which may lead to suppuration, and exhaust the patient's strength.

Position of Patient.—As before stated, the patient need not lie flat in bed after stomach operations, especially after gastro-enterostomy, since the escape of contents out of the stomach is facilitated by the patient being slightly propped up. In some cases, too, turning on the right side also facilitates the outflow of stomach contents. It is unnecessary to state that the patient must not move himself, but must allow the nurses to change his position. This change of position also has an influence on the bowels, since it often relieves the condition

known as pseudoileus, which has been already referred to.

In a simple uncomplicated case of abdominal section, the patient should be kept in bed for fourteen days, and may then be moved on to a couch; but she should not be allowed to walk until the end of three weeks; in hospital practice the patient usually leaves the hospital at the end of a month.

Peritonitis should never occur after any operations on the stomach, with the exception of those for perforating gastric ulcer where it has existed before the operation. In any other operation it can only occur after faulty suturing, or where septic material has been introduced either by the surgeon's hands, instruments, ligatures, or sponges. In cases of operation for septic tubal abscesses, or for those connected with the vermiform appendix, peritonitis is a real danger, and may occur after imperfect cleansing of the cavity; it is best treated by thorough and prolonged drainage.

There are two other points which require notice; the first is the administration of morphine, and the second is the admission of visitors.

Many surgeons have a great prejudice against the use of morphine hypodermically during the first days after an operation; the author does not consider that it should be given until the bowels have been opened, on account of the bad effects which it often produces. These effects are persistent vomiting and delay in the reestablishment of peristaltic action, and consequent pseudoileus and adhesions. Other surgeons, especially Spencer, make a rule of giving morphine and atropine every three hours or so, so as to prevent vomiting. Maylard also recommends a hypodermic injection of one-sixth to one-quarter grain of morphine, and repeated if necessary; Villard, too, gives morphine, except in feeble patients, where stimulants are indicated in its place. It certainly has some depressing effect, and if it produces vomiting it takes away the only chance of recovery from a feeble patient. At any rate, its use is not advised.

THE TREATMENT OF ENDOCARDITIS.

NEWMAN states in the *Physician and Surgeon* for March, 1901, that the medicinal treatment of failure of compensation in heart lesions is very often quite brilliant. He does not attempt to go into the treatment as it affects the diseased condition of one or the other valve—indeed, such a classification is not necessary. The objection that digitalis is contraindicated in aortic regurgitation because the lengthened diastole allows more time for the blood to run back into the ventricle is well taken. It is easy to see that in this manner such anemia of the brain may be produced as to cause syncope or even sudden death; but even these dangers are lost sight of as the heart becomes more enfeebled and dilated, so that the mitral valves no longer close, and the resulting venous stasis and pulmonary embarrassment demand the administration of digitalis at all hazards. In all forms of cardiac dilatation from valvular lesions, therefore, a sheet-anchor is digitalis. It is absorbed slowly and eliminated more slowly, so its action may continue for days. No other drug exerts such a tonic effect on the heart muscle. This it accomplishes by lengthening the diastole, which is the period of repair of the heart muscle. It is unnecessary to add that its effects must be closely watched and its so-called cumulative action avoided. If a dilating heart does not respond to digitalis within a few days, it generally indicates that the compensation is gone forever.

Strophanthus, next in importance to digitalis, is less cumulative in its action, less liable to derange the stomach, and often induces free diuresis when digitalis has failed in this respect. Strychnine is one of the best cardiotonics, and given in doses of one-sixtieth to one-thirtieth of a grain can be continued almost indefinitely.

Caffeine has a very uncertain if any action on the heart, but a very decided action on the kidneys. As a diuretic it is the most important of the heart drugs, and is, therefore, of the greatest value when there is renal suppression and dropsical effusion.

Probably the most abused of the heart drugs are nitrites. They are the most powerful depressants of blood-pressure known. Nitroglycerin has no action on the heart, but decreases the resistance against which the systole is performed. It must be remembered that the effect of nitroglycerin is very fleeting. Its physiological action is produced in about two minutes and is gone in forty minutes.

In closing Newman mentions a few of the symptoms of cardiac dilatation in de-

tail, because much can be done to relieve the patient beyond the routine treatment of the heart.

For the palpitation we have a measure of relief in the ice-bag, the belladonna plaster, and morphine hypodermically.

The dyspnea of heart disease has a cardinal remedy in nitroglycerin. Many patients carry one-hundredth grain tablets constantly with them, and find it absolutely impossible to live without it.

The enlargement of the liver, beyond its treatment from the heart, can be benefited by an occasional dose of calomel or phosphate of soda, one to three drachms in hot water three times daily.

The bronchitis is largely relieved by the treatment of the heart, but occasionally codeine or morphine or hydrocyanic acid will give relief. At the present time the author is treating a patient with cardiac dilatation associated with aortic stenosis and mitral insufficiency in whom the coughing and vomiting from congestion of the lungs and stomach were almost incessant, and day or night he was unable to lie down. He passed the dreaded nights without sleep, harassed without ceasing with his cough and his stomach. For a week in addition to the heart treatment he has tried codeine, morphine, hydrocyanic acid, bismuth, etc., without result. One-twelfth grain of heroin every two hours three times stopped alike the cough and the vomiting for three days, after which it had to be repeated.

The anasarca should be treated promptly, and the lymphatic spaces cleared. Puncturing with a large sized needle, with all aseptic precautions, will often give the greatest relief to the patient, frequently with the disappearance of the asthma, the edema of the lungs, the palpitation, and other symptoms.

THE VALUE OF ALCOHOL IN THE ACUTE INFECTIOUS DISEASES OF CHILDREN.

BIESER states in *Pediatrics* for April, 1901, that it may be conceded at the outset that in the acute infectious diseases of children, such as diphtheria, measles, scarlet fever, pneumonia, typhoid, the three following physiological functions are always more or less disturbed, viz.: (1) vital function of nutrition; (2) vital function of animal heat production; (3) vital function of correlation of energy.

What agencies, barring specific remedies, or hydrotherapy, or removal of cause where possible, hamper the *vis medicatrix naturae* less in the diseases above stipulated than alcohol judiciously used? As a result of his practical experience the author hopes to convince his *confrères* that instead of hampering the organism in its benign fight to throw off disease, alcohol really aids the natural recuperative forces of the body.

What single drug so well meets the three disturbances of vital function just mentioned?

1. Vital function of nutrition. By saving nitrogenous waste, as is evidenced by diminished excretion of urea, it certainly aids indirectly, at least, in restoring the vital function of nutrition in diseases where tissue-makers must be barred from the dietary. Barring tissue-makers, what better substitute for food than a tissue-saver like alcohol can we find?

2. Vital function of animal heat production. By virtue of its making adequate provision for proper heat elimination from the periphery of the body—for it must be remembered that fever in general, and especially in the infectious diseases, is due rather to diminished elimination of heat than to increased production of heat—alcohol reduces the fever, thus keeping the vital function of animal heat production at its proper balance. Is this a hindrance or an aid to *vis medicatrix naturae?*

3. Vital function of correlation of energy. Alcohol in a healthy person increases frequency and force of the heart's action; in a heart weakened by fever and depression therapeutic doses (where the heart is rapid but feeble) increase the force by diminishing the frequency of the cardiac pulsations; the working power of the heart is increased in both instances. By keeping the pulse-respiration ratio as near to four to one as possible alcohol assists the natural recuperative powers of the organism in restoring the above vital function of correlation of energy.

By correlation of energy is meant mutual conversion of energy, that converted energy is never lost, merely transformed. Thus, in a child whose vital functions are merely depressed, not exhausted, alcohol can induce the proper circulatory energy; this, in turn, is apt to induce the proper respiratory energy; both of these in turn are apt to cause the proper secretory and excretory

energy, one being, as it were, dependent to a large extent upon the other.

Coming down to the practical part of his paper—the treatment of diphtheria, scarlet fever, measles, and pneumonia by alcohol—we can see whether the results of treatment in actual practice warrant the encomiums bestowed upon it in the preliminary discussion of the chemico-physiologic virtues; for clinical results after all transcend in value, at least as far as our little patients are concerned, the most learned and brilliant theoretical disquisitions. If any one can give sufficient reasons to show that alcohol alone has snatched the severest types, or even only one very severe type, of any of the above diseases from the jaws of death, he has shown that alcohol has been weighed in the scale of experience, and has not been found wanting.

RHUS GLABRA IN ENURESIS.

CASSIDY (quoted in *New York Medical Journal,* March 16, 1901) reports three cases of nocturnal enuresis in boys of from twelve to fourteen years of age, in which other treatment had proved unavailing, successfully treated as follows:

Citrate of iron, 160 grains;
Syrup of lactophosphate of lime,
Aromatic syrup of cascara, of each 2 ounces.
M. A teaspoonful after dinner (noon).

Fluid extract of rhus glabra, 320 minims;
Syrup, to 2 ounces.
M. A teaspoonful at bedtime.

This treatment was continued for four months. The incontinence disappeared and did not recur. The author declares that rhus glabra produced more than a temporary effect.

OPERATIONS ON DIABETICS.

It is a generally accepted view (editorial, *Medical Press)* that surgical operations on diabetic subjects are attended by so much more than the usual amount of risk that, under ordinary circumstances, they are best avoided. In the abstract, no doubt, this view is correct, but there are circumstances and cases in which the objection does not hold good. No surgeon would refuse to operate, for instance, on a diabetic subject who happened to have a strangulated hernia or other form of acute intestinal obstruction. In general, when non-intervention would entail inevitable death it is the surgeon's duty to shut his eyes to the diabetic complication and to operate. Apart from these operations of urgency the advance of medical science renders it possible to operate on diabetic subjects with a fair prospect of a happy issue, provided that proper precautions are taken to restrict the quantity of sugar in the system. The question came up before the Royal Medical and Chirurgical Society on a paper read by Mr. Barker, who was enabled to relate two very successful cases of intestinal surgery in diabetic subjects, showing that even under the most unfavorable circumstances surgical intervention in such patients is not necessarily a forlorn hope.

From the point of view of surgical risk diabetics may be divided into two categories. First of all, the presence of sugar in the urine is a symptom the significance of which varies greatly according to the age of the patient. In an elderly person of full habit it hardly constitutes a contraindication, whereas in a young person diabetes runs a much more rapid and fatal course. Looking at the question from another point of view, diabetics may be divided into two classes, one in which the sugar is of purely alimentary origin, in which a proper supervision of the diet will suffice to reduce the sugar in the urine to negligible proportions. A glycosuric person in whom the excretion of sugar can thus be controlled may, for surgical purposes, be regarded as one of average resistance and dealt with accordingly. There are other cases, however, cases of true diabetes, in which the sugar is only in part derived from the carbohydrates taken as food, a variable proportion thereof being of tissue disintegration. In these, diet, however strict, does not remove the sugar from the urine, and the gravity of the prognosis is proportionately grave. Obviously it is for the surgeon to ascertain as far as possible into which category his diabetic patients fall, because in the latter class even the most trifling surgical operation may be attended by the most serious risk to life. The ease with which trifling traumatisms determine grave constitutional disturbance in diabetic subjects is extraordinary, as every practitioner knows to his cost.

Unfortunately, the distinction between the two classes does not work out as satisfactorily in practice as it does in theory. In many, possibly the majority of instances, the cases are on the border-land, and

though diet does to some extent diminish the excretion of sugar, there still remains enough to inspire anxiety as to the possible results of surgical intervention. In these cases prudence is the best counselor, and as a general rule no operation except of the imperative kind should be performed. While medical science enables us to place certain diabetics in a comparatively satisfactory state for operation, it does not divest the presence of sugar of its fell significance, especially when observation shows that the sugar is not exclusively of alimentary origin.

SIMPLE OPERATION FOR HEMORRHOIDS —ENUCLEATION.

PENNINGTON (*International Journal of Surgery*, December, 1900) describes a simple operation for hemorrhoids that he has employed in about fifty cases, and which has proved more satisfactory than any other method.

The second night before operation there is administered to the patient from two to three grains of calomel in combination with subnitrate of bismuth and pepsin. The following morning there is given Rochelle or Epsom salts. The night before the operation the anus is shaved, the patient bathed, and the colon flushed. At seven o'clock the following morning there is given an enema of from one-half to one pint of cool water, and the operation takes place two hours later.

The patient, after anesthetization, is placed in the Sims posture. Pennington has devised a special table for rectal surgery which he uses in the operation. The sphincter is carefully and gently divulsed with the fingers, and the rectum is irrigated with an antiseptic solution, usually bichloride of mercury 1:3000, followed by sterilized water. A strap is then placed over the patient's right shoulder to prevent slipping, and the table is tilted to place him in the proctoscopic posture, equivalent to the extreme Sims or knee-chest posture. A tubular speculum is then introduced, and the entire rectum, valves, chambers, and part of the sigmoid carefully examined. If any tumors, deformities, or obstructive valves are noticed, they are given immediate attention. Polypi are ligated and removed. If there is a history of constipation, and if one or more of the rectal valves obstruct evacuation, there is applied an automatic valve-clip. This clip divides the valve painlessly and effectively by pressure necrosis. In this manner the obstruction is removed, and the caliber of the bowel at that point is increased. By this method the author has been very successful in curing constipation in patients who have been operated on for hemorrhoids.

The table being turned to its normal position, the patient is retained in the lithotomy posture by means of the Clover crutch. The rectum is reirrigated, and each anal quadrant grasped at the mucocutaneous junction with a pair of T-forceps, which are held by an assistant. With them the anus is everted, and the internal tumors exposed. Now seizing with a full hand the forceps attached to the posterior quadrant, the author fully everts it, and with a pair of scissors curved on the flat he cuts off the redundant tissue only, which is usually about one-third or one-half of the uppermost part of the hemorrhoidal node. The blood of the tumor is thus permitted to escape. All angiomatous tissue is carefully removed, when the remaining wall collapses. This leaves a very small area, if any, of denuded surface. Each quadrant is treated in regular order in this manner. A stream of hot water, sterilized, flows over the field continuously during the operation. Spurting vessels are caught with a pair of forceps and thoroughly twisted. The T-forceps are removed, and all external tumors and tabs of skin cut off with a pair of straight scissors. The field is then dusted with nosophen powder, and a rubber-covered tampon is introduced through a bivalve speculum.

The tampon is allowed to protrude about one and a half inches. Gauze is carefully wrapped around the protruding part, and packed close to the anus. An anchoring string is wrapped around a piece of gauze held close to the end of the tube to prevent its slipping into the rectum. Over this is placed gauze, cotton, and a T-bandage, which should be taut. The patient is now placed in bed.

At the end of forty-eight hours a cathartic is given, and the tampon is removed.

Until convalescence, the parts should be washed or irrigated twice a day with an antiseptic solution, and dusted with some powder, as iodoform, boracic acid, or nosophen. The last is preferred. After the bowels have moved, the patient is instructed to keep them soft for two or three weeks. For this purpose there is frequently pre-

scribed compound licorice powder. Apenta water is also effective. If there is a pain or aching sensation, a hot sitz bath of twenty minutes' duration is given. As a detergent, small pieces of wet cotton or cottonoid are used. Hard substances should not be employed for this purpose.

Rubber dressing is found best because it is neater, its removal is painless, and the healing process is greatly enhanced. There is also little or no danger during the first and subsequent movements of the bowels.

The operation is quickly and easily performed. Patients suffer little or no pain, are out of bed in a week, and often in less time.

PERFORATION OF THE INTESTINE IN TYPHOID FEVER.

JOPSON *(University of Pennsylvania Medical Bulletin,* March, 1901) presents a careful digest of recent literature upon perforation of the intestine in typhoid fever, and notes that it is conceded by all that in the future the surgeon will often be found in consultation at the bedside of the typhoid case.

Prognosis of typhoid perforation without operation is bad. A few cases undoubtedly recover—five per cent according to Murchison. Some of these are probably appendicular perforations in a quiet corner of the abdomen.

In the operative cases, taking Keen's combined tables, including 158 cases, 23.41 per cent recovered, and of the last 75 cases, 28 per cent. This may be raised, if the value of operation is properly appreciated, Keen thinks, to 33 per cent. Of Finney's series of 112 cases, 23 recovered. Of the 21 cases in the Boston series, 3 recovered. Of 16 cases from Osler's wards, 6 recovered. It seems probable that the Boston series represents more nearly the mortality up to date than do the tables of Finney and Keen, as the first is taken from the hospital records including all cases, and the latter from general literature, where favorable cases of any kind may be expected to be more frequently reported in proportion to the whole number than the unfavorable ones.

Cases in fair condition bear laparotomy well, and the subsequent course of the disease even seems to be sometimes favorably influenced thereby. Children under fifteen seem especially resistant, furnishing the highest percentage of recoveries in Keen's tables.

Cases taken early, before general peritoneal infection sets in, should be placed in a separate series.

As to the technique of operation, the indications for incision in the right iliac region instead of in the median line are now generally recognized. Excision of the ulcer is not to be recommended. Any tight method of suturing may be practiced, mattress sutures being especially useful, and care being taken not to decrease too much the caliber of the bowel. Large ulcers may demand resection of bowel or establishment of an artificial anus. Thinned areas threatening perforation should be turned in. The possibility of two perforations must not be forgotten. Perforation may rarely occur in the cæcum and sigmoid. Irrigation is demanded, and thorough wiping out with gauze useful. Drainage is recommended for general peritonitis, and for most cases without it, although the Hopkins surgeons make a reservation in favor of the usefulness of pure postural drainage in these cases.

Laparotomy under cocaine is quite feasible. Its use in mild typhoid is deprecated as unnecessary by the Boston committee. They consider, also, that the manipulations and other incidents attendant on a laparotomy on a conscious patient are likely to cause more shock than ether judiciously administered. Spinal anesthesia may be useful in this domain.

As to the time of operation, Keen's tables show a higher ratio of recovery in the second twelve hours, and so he deprecates operations in the stage of initial shock if such be present, at the same time not losing sight of the dangers of increasing infection. Taylor suggests that such shock may be due to an outpouring of septic material into the peritoneal cavity, and only to be combated by checking further infection. This is largely a theoretical question and will probably not often delay operation.

THE SURGERY OF THE TURBINAL BODIES WITH A NEW METHOD OF OPERATING.

BOYLAN *(New York Medical Journal,* March 9, 1901), in dealing with hypertrophy and degenerative changes in the turbinated bodies, noted the preponderance of hypertrophy in certain regions, principally at the

extremities, rather than in the central part of the bodies. He gradually resorted more and more to the removal of larger segments of the excessive tissue by one smooth operation. He now believes that in the advanced hypertrophy so frequently associated with interference with the respiratory function the judicious amputation of portions of the turbinated bodies will be the operation of the future in rhinology.

His conclusions, drawn from 111 turbinotomies in private practice, and from clinical cases of which a record has been kept, are:

1. That while in exceptional cases involvement of the whole erectile tissue area of the pendulous portion of the body may coexist, hypertrophy is usually greatest where this tissue is most abundant—at the anterior and posterior extremities.

2. That the relief of obstruction and the reduction of hypertrophy in these cases is accomplished more certainly and scientifically by ablation than by cauterization.

3. That while venous dilatation is greatest at the posterior extremities, obstruction is rarely due to hyperplasia at this point alone.

In the cases referred to, the lower part of the inferior turbinated body was removed throughout its entire length in three instances with the saw, and in twenty further cases sections embracing the anterior extremity with the same instrument. In twenty-four cases turbinotomy of the lower or middle body was performed with the scissors, or with the saw and scissors together, and in sixty-four cases sections of varying size were removed with the cold snare.

The snare, if the wire is stiff and thin, cuts through the tissue smoothly and usually with ease. The use of the saw and scissors was in time restricted to cases in which excessive induration suggested an exceptionally thickened bone.

To prevent accidents, the end of the loop is fixed by burying the point of a fine tenaculum, the hook of which forms a right angle, into the lower margin of the turbinated body at the point of operation, carrying the loop over its handle into the meatus and adjusting it so that it passes behind and is held in place by the back of the hook. By this means it is possible to entirely control the removal of the amount of tissue required, and combined, if necessary, with lateral incision, amputation can be done with accuracy as far back as the middle of the body.

Boylan, finding that the point of the hook was at times caught in the loops, had this bent to an angle somewhat more acute than a right angle, and in operating it was tilted still farther forward by depressing the proximal end of the tenaculum.

During the manipulation the snare should be pressed firmly backward and upward, so that the loop is drawn above rather than from in front. The back of the hook is corrugated for the better retention of the loop.

The method described was not found applicable to cases in which the removal of the posterior extremities of the lower bodies was performed with a snare, this being usually accomplished by conjoined manipulation through the mouth—in two cases with great difficulty, twice under anesthesia.

In eighteen cases in which marked enlargement of the posterior extremities coexisted with causes of obstruction farther forward, such as polypi, hypertrophy at the anterior extremities, or of the lower margin of the body, and irregularities of the septum, the removal of the latter sufficed to restore the lumen of the passage, after which the posterior hypertrophy was no longer a source of serious annoyance, and in several instances receded rapidly under local treatment.

The indication, in the principle involved in turbinotomy, is to remove as little tissue as possible consistent with freeing of the passages from obstruction to respiration.

ICHTHYOL IN TREATMENT OF DEEP-SEATED INFLAMMATIONS.

SLEVIN *(New York Medical Journal,* March 9, 1901) gives the following formula for the relief of deep-seated as well as superficial inflammations:

> Ichthyol, 45 grains;
> Lead iodide, 45 grains;
> Ammonium chloride, 10 grains;
> Petrolatum, enough to make 1 ounce.

For the last substance, glycerin, rose ointment, or cacao butter may be substituted. It should be applied by rubbing upon the inflamed parts.

The results in acute inflammatory cases have been most excellent. The preparation is of great aid to absorption.

DIAGNOSIS AND TREATMENT OF LARYNGEAL CANCER.

MACKENZIE *(Bristol Medico-Chirurgical Journal,* December, 1900) opened a discussion before the American Laryngological Association, May, 1900, on the early diagnosis and treatment of laryngeal cancer. He gave three methods of arriving at a diagnosis: (1) The naked-eye appearances, combined with the clinical history; (2) thyrotomy; (3) microscopic examination of a removed fragment.

The first and second frequently go together, and a more extensive division of the cervical tissues than a mere laryngofissure is allowable in cases of reasonable doubt, or where one cannot otherwise define the exact territory occupied by the disease.

The removal of a piece for microscopic examination is a dangerous procedure, as it renders the patient liable to autoinfection or to metastasis. If reasonable doubt exists, it should not be done. Early and thorough removal is necessary, and as regards operation on one-half of the larynx, the other half that is left is not of much value for voice production. Intralaryngeal operations in extensive disease are to be condemned. Simple thyrotomy with curettage is a reversion to the status of fifty years ago.

Delavan remarked that of 163 cases occurring in the practice of eight European surgeons who had had at least ten personal cases on which radical operations were performed, only six per cent of recoveries took place.

Solis-Cohen called attention to the following points in the performance of laryngectomy:

(1) Operate with the head in a semi-inverted position, to prevent entry of septic matter into the lungs. (2) Preliminary tracheotomy should be done, otherwise we are troubled by the descent of the trachea. (3) If possible, retain the epiglottis. (4) Shut off all communication between the mouth with the air-passages. In attaching the upper part of the trachea to the skin, the tube should be slit longitudinally for a short distance. (5) All dressings should be avoided. Feed by enema, and use no tube by the mouth. Allow no packing, as it causes constant desire to swallow. (6) Remove the larynx from below upward, and elevate the foot of the bed after operation.

SECONDARY HEMORRHAGE AFTER USE OF SUPRARENAL EXTRACT.

HOPKINS *(Bristol Medico-Chirurgical Journal,* December, 1900) has found that suprarenal extract is apt to cause hemorrhage, and believes that after its use intranasal packing should be used in operations on the nose.

Swain has seen more hemorrhage when the extract and cocaine have been used in combination.

Farlow has not observed hemorrhage from it, but has had some remarkable cures of coryza from it.

Grünbaum points out that suprarenal gland extract does not cause coagulation, and so does not seal vessels with clots. It follows that unless the application is repeated there may be fresh bleeding. Hemorrhage from a small artery is more likely to be affected by it than capillary oozing from a hyperemic mucous membrane, since it acts by causing contraction of the plain muscle fibers of blood-vessels.

CARBOLIC GANGRENE.

SWAIN *(Bristol Medico-Chirurgical Journal,* December, 1900) notes that many surgeons have discarded the use of carbolic acid except for the immersion of instruments which are tarnished by solutions of mercury, but that it is not yet sufficiently known that this too popular antiseptic is liable to cause gangrene when applied to the extremities even in dilute solutions. The dilute solutions cause no pain, and are therefore the most dangerous.

Harrington has collected a total of one hundred and thirty-two cases of gangrene from dilute solutions of carbolic acid. It appears from his observations that the disease is due to the duration of the application and the thickness of the patient's epidermis more than to the strength of the solution.

Lévai is quoted as saying that strong solutions are less dangerous because they form a more or less impervious scab. According to the same observer, the death of the part is due to a direct chemical action on all the tissues. Carbolic acid has no specific quality for the production of the gangrene, for a like effect is produced by five-per-cent solutions of hydrochloric, nitric, sulphuric, and acetic acids, and of caustic potash when applied to an extrem-

ity by a moistened compress for about twenty-four hours.

Tight bandaging undoubtedly increases the tendency to this process, but experiments have shown that the gangrene does not result primarily from this cause. The treatment of this condition varies according to the severity of the process. If it seems superficial, and the case is seen soon after the removal of the carbolic dressing, it might be beneficial to apply a dressing saturated with lime water, but in other cases it soon becomes evident that amputation is the only resource.

The best prophylactic consists in the avoidance of the use of carbolic acid for wounds, and it is the duty of physicians to show by their example that the public should not make use of this antiseptic.

TREATMENT OF ACUTE GONORRHEA.

BALCH *(Boston Medical and Surgical Journal,* February 7, 1901) has had some people tell him that after a doubtful connection they always take an injection of a weak solution of permanganate of potash, and that they never became infected when they have done so. He thinks this is unwise for the ordinary run of people. He himself has irrigated the urethra of patients who came the day after with permanganate, 1-to-4000, or a four-per-cent solution of boracic acid. No gonorrhea followed; but Balch considers it doubtful if it would have followed anyhow.

He tells his patients that it is best to treat the case twice a day during the first week or ten days, letting the patient himself use injections two or three times a day for two or three weeks more. This procedure brings more comfort to the patient; there is less discharge, and recovery is quicker with less danger of complications. If the patient cannot give up so much time, he is given medicine, is seen perhaps twice or three times the first week, and then once a week for as long as it takes to effect a cure.

He has come to believe in only three injections—nitrate of silver, permanganate of potash, and protargol. He has been more successful in the early stages with nitrate of silver. The bladder is irrigated with plain boiled water, and all the water possible is stripped out. A syringeful of the silver solution is injected. One grain to the ounce is used if the lips of the meatus are puffy. If there is no evidence of very active inflammation, two grains to the ounce solution is used. It is allowed to escape after being held for about a minute, and the urethra is again washed with water. This procedure is followed twice a day, increasing the solution strength to two grains to the ounce the second day, and to three grains the next day. It is considered unwise to go higher than this. Scalding on micturition often ceases after the first injection. The discharge becomes thin and watery after a few days, and often ceases after five or six days. It is best to continue the injections a few days more, gradually decreasing the amount of nitrate of silver. If at the end of ten days there is no discharge, the patient may use an injection of permanganate of potash, two grains to sixteen ounces of water. He should begin by using it twice a day, and should continue to use it for two weeks or so. When permanganate of potash is used from the beginning, it is best to irrigate with a large amount of weak solution rather than with a little of a stronger one; 1-to-4000 is strong enough. A quart of the solution as hot as it can be borne comfortably should be allowed to flow in and out, and, if possible, twice a day. This should be kept up for ten days, and then the patient should take injections himself for ten days longer.

Protargol is a safe injection for the patient to use himself. A half-per-cent solution is considered strong enough at first, and should be diluted if there is much scalding. The injection should be retained for at least three minutes, but ten minutes is better. Repeat three times daily for ten days, and then at longer intervals until a cure is effected.

With all three of the methods it is often necessary to give a mild astringent injection at the end to get rid of the final glueing together of the lips of the meatus in the morning. Balch uses sulphate of zinc from 4 to 8 grains, fluid extract of hydrastis ½ ounce, and rose water up to 4 ounces. Strong solutions of silver nitrate applied through an endoscope, or strong solutions of permanganate or corrosive sublimate by injection, which rarely cut a gonorrhea short, are justifiable only under extraordinary circumstances.

It is safest to rely on medicine only if the disease is presented after developing

fully for several days. If it does not upset his digestion the patient should drink two quarts of water daily instead of taking citrate and acetate of potash. Compound salol capsules are found better than sandal oil. Methylene blue is best given in capsules containing one grain of methylene blue, one drop of oil of cassia, and one drop of oil of sandalwood. Three capsules a day is usually as much as a patient can take, and at times the dose has to be reduced to two after forty-eight hours. Urotropin when given in large doses causes scalding. Salol is in the same class as urotropin, but is not as efficient as a urinary antiseptic; it also causes scalding.

Peppery and spiced foods should be avoided. Neither ginger ale nor alcohol should be used.

The patient should keep as quiet as possible, should avoid bicycle and horseback riding, should keep the bowels open, and should avoid sexual excitement. A hot bath on going to bed lessens the tendency to chordee. A suspensory bandage lessens the liability to epididymitis. In inflammation, rest in bed and an ice-bag give the greatest relief. A narrow meatus should be cut at the beginning to enable injections to be given satisfactorily.

Obstinate cases clear up surprisingly when all treatment is stopped. A false sense of security is given by an astringent injection in the early stages of the gonorrhea.

THE RADICAL TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

WAGGETT *(New York Medical Journal,* March 9, 1901) points out that in the radical treatment of disease of the larynx there is a new thyreotomy and a new statistics—a statistics which is overwhelmingly more favorable than that of any other radical operation for malignant disease of the larynx. By it is obtained a percentage of 29.9 of three-year cures, as against 5.85 per cent after total extirpation, according to Sendziak's statistical tables, including all available cases between 1851 and 1894.

The comfort and ability of the successful thyreotomy case is almost complete. There is, of course, no fistula, and no tracheal tube. The voice must always be the last consideration in the matter, but Semon, well recognizing this fact, records the vocal results in ten of his successful cases thus: voice good, 6; weak, but better than before operation, 2; whisper, 2.

Semon's death-rate from operation for the period 1888-1897, including the early cases which served to invite rather than to exemplify a final and improved form of operation, amounts to 6.66 per cent. Out of the fifteen patients, one died from the operation; the patient was a chronic bronchitic, seventy-two years of age.

As to a reasonable assurance of a permanent lease of life after thyreotomy, Semon computes his percentage of cures (*i. e.*, more than one year free from recurrence) as 83.3 per cent, or ten out of twelve operations.

Waggett believes that, in the face of these figures, it is absurd to sweep aside thyreotomy with the remark that it is an operation which half a century ago was discredited and abandoned. Thyreotomy, he believes, as practiced by Semon, Butlin, and a large number of other British surgeons, yields brilliant results. As to Professor Mackenzie's new operation, he contends that the results of experience with it must be awaited.

Waggett holds that an operation which has yet to win confidence, and which at best can offer the patient an insecure lease on life, purchased at a terribly heavy premium, should not be used as a means to repress thyreotomy, which is now doing admirable work.

POINTS IN THE CLASSIFICATION AND DIAGNOSIS OF SOME JOINT AFFECTIONS.

BANNATYNE *(Lancet,* Feb. 23, 1901) summarizes present knowledge of the great variety of ways in which arthritic troubles may arise. There are those due to (1) bacteria themselves acting on the joint structures; (2) bacterial poisons (pulmonary osteoarthropathy); (3) toxic poisons of an as yet undetermined character (gout); (4) nerve degenerations; and (5) senile degenerations. Of these Nos. 2 and 3 will probably be referred to some other category as further scientific data become available.

TREATMENT OF CHRONIC GONORRHEA.

ALLEN *(Boston Medical and Surgical Journal,* Feb. 7, 1901) terms gonorrhea chronic when the inflammation has become

localized at one or more points along the course of the urethra. Gleet is slight, and the urine is transparent, but contains shreds of mucus and pus. The points at which the subsiding inflammation most commonly lingers are the penoscrotal angle and that portion of the pendulous urethra just anterior to it, the bulbomembranous junction, the prostatic urethra, and much less frequently the fossa navicularis.

The tissue changes following an acute gonorrhea, which determine the localization of the disease at these points, have an important bearing on treatment. In the treatment of the conditions the objects to be aimed at are the removal of fibrous deposits, the restoration of the thickened and rigid mucous membrane to approximately its original soft and elastic condition, and the cleaning out of diseased follicles and glands.

The first principle of the treatment is dilatation—dilatation of the anterior urethra to check the cicatricial contraction, cause the absorption of the morbid deposit, and open up the follicles so that medicated solutions can penetrate them, and dilatation of the posterior urethra to open the follicles of the prostate in the same manner, and to stimulate circulation in the passively congested mucous membrane.

Ordinary dilatation with sounds is often unsatisfactory, because it cannot be carried far enough. By means of dilators which can be passed through a moderate-sized meatus, the urethra can be stretched to a point far beyond what is possible with the largest sounds and yet cause little or no reaction.

For stretching the urethra the four-branched dilators of Kollman are the best. A straight instrument is used for the anterior urethra and a curved one for the posterior. There is little pain or reaction in some cases where it is necessary to dilate to an extreme degree. Ordinarily, dilatation stops several sizes short of 40.

After dilatation the local application of various remedies is effected by means of injections or irrigations, and later the urethra is inspected through the endoscope and local applications made under control of the eye to such points as require them.

If the patient, in an average case of anterior urethritis, objects strongly to meatotomy, dilatation may be fairly well done with an Otis urethrotome without the knife. First, an endoscopic examination may be made to aid diagnosis. With a bulbous bougie any narrowing, if of sufficient degree, can be detected and located. Should there be little narrowing of the urethral caliber, the instrument can be screwed up easily to a high point without pain. The urethra should be washed out with a suitable preparation; Allen generally injects about half a drachm of ten-per-cent solution of protargol, rubbing it in thoroughly from the outside. For the first few days after dilatation, while the follicles are still wide open, the patient should use an injection of bichloride, silver nitrate, or permanganate twice a day. The treatment should be repeated in a week, or the endoscope used, according to circumstances. In case of stricture this must be gradually dilated at weekly intervals until practically done away with before the endoscope will be of much use. For local applications through the endoscope, nitrate of silver in solutions of from three to ten per cent gives the best results.

In the deep bulbous and prostatic portions the curved dilator is used. When the follicles of the prostate are involved massage is of great assistance. The appearance of the urine is carefully noted, as it furnishes the best guide to the progress of the treatment. The prostate is massaged by the finger in the rectum while the bladder contains some urine. The patient then urinates, entirely emptying the bladder. The fluid is carefully inspected for the short clump shreds that come from the follicles of the prostate. The posterior dilator is passed and screwed up slowly as far as the patient can bear without discomfort, left in a few minutes, removed, and an injection of permanganate, silver nitrate, or protargol thrown in. This may be repeated once a week.

When the seminal vesicles are involved, stripping or massage of these organs is done in connection with the treatment just described. Sometimes a chronic discharge proceeds from the vesicles alone. In this case treatment is confined to them, and stripping is all that is required.

WHEN IS A GONORRHEA CURED?

THORNDIKE *(Boston Medical and Surgical Journal,* Feb. 7, 1901) admits that the question when is a gonorrhea cured cannot be answered. It will probably never be known, he thinks, when a man whose

urethra has become infected with a gonorrheal inflammation ceases to be a dangerous person to those with whom he may have sexual relations. Many patients recover, but there are many others who do not. Some of these latter, believing themselves well, certainly do infect their wives. Noeggerath stated, in 1872, that ninety per cent of men infected with gonorrhea infected their wives, and that men infected with gonorrhea never recovered.

The discovery of the gonococcus since that time does not seem to have markedly changed the force of his conclusions.

Physicians, in the face of these facts, are advised to use every effort to prevent the exposure of innocent women to this infection, and to teach the rest of the world the necessity for being similarly careful. Most men have probably had a gonorrhea some time in their lives; all these certainly cannot be forbidden to marry. Where possible an examination should be made to determine if it would be safe for them to marry.

The author's personal belief concerning examination is summarized as follows:

The methods of examination now known are fairly adequate to determine in any case whether there are still contagious possibilities in the case.

Present-day methods of treatment are fairly adequate for the treatment of those cases where remnants of the disease are found. Such remnants of disease should be treated whether they contain gonococci or not. They can only be intelligently treated, however, after they are found and located.

There are a few cases where the remnant of discharge persists but where no cause for the persistence can be found. Some of these must probably be allowed to marry with traces of discharge still discoverable; but none such should marry until every possible effort has been made to demonstrate its non-contagious character and until the possibility of future trouble has been explained. It is the author's custom to have more than one opinion in a case of this kind.

PRIMARY AMENORRHEA.

GILES (*Medical Press*, Jan. 30, 1901) observes that delayed menstruation is primary amenorrhea in a patient of eighteen to twenty-five, whose pelvic organs are normal or only slightly under-developed; and that permanent amenorrhea is primary amenorrhea in a patient who is over twenty-five or whose pelvic organs are markedly undeveloped.

On the point of the likelihood of menstruation coming on, good prognosis can be given in the case of a girl of sixteen or seventeen; at eighteen or nineteen it must be more guarded, and the effect of treatment should be watched; after the age of twenty no opinion should be expressed without making an examination.

If the patient be suffering from anemia, tuberculosis, or other constitutional condition that may cause amenorrhea, it may be said, subject to the age conditions treated above, that menstruation will probably begin when the general condition has improved.

If the general condition be good, and the patient be twenty years of age or older, the development of breasts and pubic hair should be noted. Any marked deficiency in these secondary sexual characters is unfavorable, but an examination should be made. The patient, if unmarried, can best be examined under an anesthetic. If no abnormality can be found, or the uterus is only slightly under normal size, the prognosis is not unfavorable; if the uterus is very small or rudimentary, or if the ovaries are very small and infantile in shape, the probability is against the establishment of menstruation.

The question of child-bearing will only arise in patients eighteen or over. An examination of the pelvic organs will be required. If they are normal the prognosis may be considered fairly good if the patient be eighteen; if she be nineteen and has not menstruated, she is more likely to be relatively, though not absolutely, infertile. If she is twenty or over the likelihood of child-bearing diminishes rapidly in proportion to the age; and if she be twenty-five or over, she will almost certainly be sterile.

If the uterus is under-developed, the uterine canal measuring two inches or less, the patient will be sterile even though she may menstruate.

Faulty constitutional condition should be treated. Anemia especially requires iron with arsenic and strychnine or nux vomica, and as the anemia improves menstruation is more likely to be established. Reputed emmenagogues have not been found by Giles to be encouraging. After a reason-

able trial of drugs, if no result is obtained, it is usually advisable to examine the pelvic organs. If there is under-development, drugs are futile, and under these circumstances it is best to explain the condition and leave matters alone. Electrical stimulation is undesirable and unnecessary in the case of single patients, though it may be tried in exceptional cases. The most effective stimulus is that supplied by marriage, but Giles does not believe it comes within his province to advise matrimony as a remedy for amenorrhea.

PERITONSILLAR ABSCESS.

COBB *(Boston Medical and Surgical Journal,* Jan. 31, 1901) urges more care and study in the relief of peritonsillar abscess. The cause of this affection is said by some authorities to be due to suppuration in the loose connective tissue around the tonsils which starts *de novo,* as does any boil elsewhere. Others say that it is a symptom of the rheumatic diathesis, while still others think, as does the author, that it results from infection by the germs of acute tonsillitis. It is always met with in conjunction with some tonsillar obstruction to the supratonsillar fossa. The consensus of opinion seems to be that it arises in the cellular tissue above, behind, or in front of the tonsil. Chiari, however, believes that the abscess is formed in the pharyngomaxillary space. Injection of this space in a cadaver certainly gives the appearance of the ordinary peritonsillar abscess. This space also contains the great vessels, but is separated into two portions, an anterior and a posterior, by the stylopharyngeus muscle and its fascia. In the former Chiari thinks that the pus forms, and being unable to force its way backward on account of the resisting stylopharyngeus, pushes forward and inward until it makes its exit through the pillars usually in front of or behind the tonsil.

Diagnosis is usually easy after the first forty-eight hours, the familiar swelling of the soft palate and its one-sided appearance making a picture not easy to mistake. Pain, of short duration, and violent inflammatory appearances are strong characteristics. The cases which require most care in diagnosis are those in which the swelling has lasted some weeks without much inflammation or pain. The diagnosis between sarcoma of the peritonsillar tissue, syphilis, and subacute peritonsillar abscess is sometimes difficult. Peritonsillar inflammation is not accompanied by ulceration in any part of the mouth or tonsil, while gummata or sarcomata are apt to be so associated. In chronic peritonsillar swelling, some discharge of pus may usually be found on careful examination, while puncture, if other means fail, will give a clue to the diagnosis.

The first symptom is usually a severe chill followed by fever and headache, and by pain referred to one side of the throat only. The pain throbs at first, but becomes sharper. Ear pain is prominent. Interference with respiration in adults is not usually so marked as in children, but deglutition is very painful. In bilateral peritonsillar abscess the ordinary appearance is of course changed, as well as the symptoms of pain and throbbing on one side. The evenly swollen palate presents no contrast; the uvula hangs in the middle line. When the tonsils are carefully examined no enlargement is shown beyond the pillars, and the pillars are nearer the median line of the pharynx than usual. The bilateral condition is a rare one in the author's experience.

Cases of untreated peritonsillar abscesses usually subside through rupture commonly occurring between the pillars of the fauces. Their duration is about seven days. Cobb notes that if an attack cannot be aborted in less time than is required by nature nothing is gained by operation. The disease is usually self-limited, but there are several cases on record where the pus made its way into the posterior part of the pharyngomaxillary fossa, and so into the mediastinum, with a fatal result. Thrombosis of the large veins and pyemia have also resulted.

Cobb has found it impossible to abort an attack after peritonsillar swelling has appeared. When the patient feels an attack coming, resort may be had to quinine, opium, and diaphoresis, on the same principle as is adopted to check a cold. Bosworth believes in the salicylates and other antirheumatic remedies, and gives large doses of 13 to 15 grains an hour of the salicylate of soda with a drop of Fleming's tincture of aconite until the physiological effects of numbness and tingling of the finger-tips caused by the latter drug begin to appear, when its use is permanently discontinued. Knox found this procedure efficacious in forty out of fifty cases. Cobb, after trying the salicylates, believes that

where swelling of the peritonsillar tissue exists only the knife can give any relief, while the salicylates on account of their depressing influence contribute to the exhaustion which follows this very debilitating disease. When the swelling increases, efforts should be directed to bringing the abscess to a head as quickly as possible. Hot-water gargles repeated every hour are found as satisfactory as anything for this purpose. It is after the swelling is well under way, or three or four days following the onset of the disease, that the best work may be done in checking the abscess. At this time the surgeon often lances the anterior pillar without obtaining pus, and even when he is so fortunate as to find it the wound closes at once and the symptoms recur within a few hours with the same severity as before. In general it may be said that a deep puncture through the anterior pillar seldom remains open, while a shallow one not infrequently does remain open.

If swelling of the posterior pillar behind the crypts of the tonsil is present, it should be probed to make sure whether it fluctuates or is simply swollen and edematous. If fluctuation can be obtained, a puncture, practically painless with the application of cocaine, should be made; a cure results with very little discomfort to the patient. If the posterior pillar appears normal, there may be a slight bulging at the junction of the anterior with the tonsils, and a very little dissection under cocaine in order to separate tonsil and pillar will give pus, which with a good-sized opening will discharge continuously. If there are no signs of pus in either pillar, the supratonsillar fossa must be sought as the most probable seat of the suppuration.

Here the knife must be used with care, as cases of death are on record from injury to the great vessels which lie in the pharyngomaxillary space. If penetration of the posterior pillar after traversing the abscess be avoided there is no danger of injuring the great vessels. The tonsillar arteries enter at the base of this organ, and may be avoided by passing between the tonsil and the pillar. If pus is not found in either anterior or posterior pillar the supratonsillar fossa should be entered, care being taken not to penetrate back further than the posterior pillar. If pus is obtained a wider opening through the tonsil may be secured. Cocaine should be employed, submucously or otherwise, to make the procedure as painless as possible.

PERIGASTRIC ADHESIONS.

BIRD *(Intercolonial Medical Journal of Australasia,* Dec. 20, 1900) points out that the subject of perigastric adhesions is complex in its anatomy, its causation, and in its results; and that it is only of late that more than an incidental interest has been taken in these adhesions. Now it is seen that perigastric and neighboring adhesions merit a special consideration quite apart from the diseases which give them birth.

The slighter forms of the adhesions are said to occur in five per cent of all necropsies. They vary in density, texture, size, and shape. Though due to a variety of causes, they are of syphilitic origin in some cases. They tend to disappear in many instances. They may produce no symptoms, or give rise to grave symptoms.

They are apt to be overlooked, and even during an exploratory operation their presence may not be detected unless the operator specifically looks for them. They lend themselves to properly directed operative treatment without danger. The dragging caused by them may be associated with a neurotic element, sometimes markedly. Sometimes they may be the causes of many so-called neuroses. In any case when they produce symptoms their clinical results are very disproportionate to their pathological entity.

The slighter adhesions may be classified by their causation thus: (1) Those induced by gastric and duodenal ulcers; (2) those whose infection arises from the bile-duct; (3) those due to syphilis; (4) those of uncertain origin; (5) some cases undoubtedly traumatic in origin.

By their symptoms they may be arranged into those which cause pain, and those which constrict natural passages.

Of such cases Bird has operated on about twenty. Most of these have been absolutely cured, and the remaining few have been very much improved.

The main characteristic is epigastric pain, started or increased by any kind of food. Adhesion pain anywhere in the abdomen is definitely localized: the patient can put his finger right over the spot where operation subsequently proves the lesion to be. This epigastric pain, bearing more or less definite relation to gastrolocomotion, and the earli-

est symptom, is different, as a symptom, from that of malignant disease of the stomach, of which pain is not at all a marked symptom until late in the disease, and in most cases not until a palpable tumor has formed.

The remission of pain when the patient is recumbent after a meal is decidedly suggestive of perigastric adhesions if there is pain when moving about with food in the stomach.

Vomiting is not believed to be a prominent symptom. When it does occur it shows signs of gastric digestion which has not been delayed.

The presence of jaundice is an accident. It should, however, be looked for; its existence is some help in forming a possible diagnosis.

The futility of medicinal and dietetic treatment is of great value, not only as a means of diagnosis, but also as an indication of the necessity of operative measures. All things, whether it be the persistent local pain, the disability of the patient, the loss of general health, strength, and weight, or the inefficacy of the physician's treatment, point toward an exploratory celiotomy.

The length of time that dyspeptic symptoms have lasted is no justification in itself for surgical intervention. It is the uselessness of medication and hygiene in a case of chronic indigestion, of which epigastric pain is the chief symptom, which renders justifiable a recourse to surgery, and careful consideration shows that these adhesion cases are in reality more definite in their symptoms than are cases of gastric carcinoma in any but the last stages.

Several considerations tend to encourage the surgeon in his exploration of the upper abdomen. Ventral hernia seldom occurs with an incision of moderate length and careful suturing. The stomach does not resent manipulation, and a nearly median incision above the umbilicus allows the surgeon to obtain a fair knowledge of the condition of the gall-bladder, pylorus and upper duodenum, pancreas, and portal fissure, in which places are centered the foci of pathological interest in the upper abdomen.

In incising the interval between the tip of the ensiform cartilage and the navel, the surgeon should be regulated rather by the position of the umbilicus or by the level of the ninth rib than by the size of the ensiform cartilage. An incision of very moderate length suffices; one of two or two and a half inches will permit delivery of the stomach. The line of incision should be to the left of the middle line to avoid the aggregation of fat about the round ligament. Much care should be exercised where the costal borders are prominent and the abdomen emaciated, and more particularly where the respiratory acts are at all violent.

The tour of discovery with the finger begins at the gall-bladder. After obtaining general information an attempt should be made to deliver the stomach; this is easy in some cases and impossible in others. Delivery allows of thorough inspection of the stomach and the easy division of any adhesions. Where it is impossible to make delivery, the attempt to do so, by stretching the wiry adhesions, demonstrates the position of the adhesions and may result in their destruction.

Many of the adhesions in the lesser omentum can be grubbed through with the forefinger-nail; care should be taken, however, not to injure several important arteries in this vicinity. Considerable hemorrhage may appear when a patient with good intra-abdominal pressure strains much; blood will be forced from all parts of the operative area to the small opening, there to look almost like important hemorrhage. Sponge pressure will in a short time leave the field dry. Careful attention should be paid to the vicinity of the pylorus; proper inspection cannot be accomplished unless the anterior layers of the great omentum are torn through and the posterior surface of the stomach is exposed to view. A process of invagination effected by the left forefinger pressing the stomach down from above into the rent in the great omentum allows of the most searching examination of the posterior surface of the stomach and pylorus. Gaining the lesser peritoneal cavity may sometimes be difficult owing to the presence of fat and of veil-like adventitious layers; large veins must be left uninjured. The finger, and sometimes the scissors, but never the knife, should be used in disposing of the adhesions. A thin catgut ligature is only occasionally necessary.

By observing the enlargement of the circumferential gastric lymphatic glands, and also those in the higher parts of the gastrohepatic omentum, the operator may gain hints of the presence of carcinomatous or syphilitic diseases.

The placement of the stomach and closure of the abdominal wall (the great omentum

will take care of itself) are now all that is required to complete an operation which, harmless in itself, will cure nearly all, and greatly relieve other cases of epigastric distress due to the slighter forms of perigastric adhesions.

INTERSCAPULOTHORACIC AMPUTATION FOR SARCOMA OF THE SHOULDER.

PAGE (*Lancet*, Feb. 23, 1901) describes in detail two cases of interscapulothoracic amputation for sarcoma of the shoulder.

The two cases were somewhat similar in character. One of the patients was a man aged forty years, admitted to the hospital with a soft fluctuant swelling of the size of a small orange over the outer end of the spine of the right scapula. His physician had diagnosed the affection as inflamed bursal cyst connected with the joint. It was held to be an ominous fact, however, that the edge of the scapular spine was at one point deficient as if from erosive destruction. An examination after the tumor had been opened revealed a round-cell sarcoma. Operation was at last agreed to by the patient, and the whole upper extremity was removed by the method of Paul Berger. The wound healed by first intention, and there was no suspicion that any growth had been left behind. About two weeks afterward the wound was again opened, nodules having appeared, and one lymphatic gland was removed, together with some more of the cervical fascia, and a further portion of the trapezius muscle. He had a pain in the right hip which gradually grew worse. Later there could be no doubt what it was, but surgical intervention was impossible. Two nodules were also found at the site of the operation. It was heard of him that his leg broke, that further recurrences took place at the right shoulder and affected both his head and his side lower down. He died after great suffering.

The second patient was a country girl aged nineteen years, admitted with a tumor on the right shoulder. Over the apex of the shoulder, occupying the region of the supraspinatus muscle, was a distinct tumor the size of a large hen's egg, giving a sense of deep-seated fluctuation, and a feeling much like a distended bursa. Operation was performed for exploration, a drainage-tube was inserted, and two days afterward when the dressings were changed it was seen that there had been septic invasion. Another examination revealed mixed-cell sarcoma. It developed by leaps and bounds, day by day the gelatinous material protruding in larger volume from the wound. The whole upper extremity was removed by an operation exactly like that in the first case. Later there was removed a tiny nodule of growth, together with much thickened fascial structures from the divided edge of the trapezius. The whole upper part of the wound area was freely scraped to impart to it a healthier tone. About eight months afterward there were signs of recurrence, a fluctuant subcutaneous lump the size of a Tangerine orange being found over the left side of the spine at the level of the second, third, and fourth dorsal vertebræ. The tumor on the back was freely removed, and found to consist of soft sarcomatous structure and one large cyst. The patient on February 19 was on the road to recovery.

Page remarks that the first cases exemplified in a remarkable degree some of the peculiarities of sarcoma—its insidious origin, its early quietude and slow rate of growth, its sudden outburst of extreme malignancy, and the difficulty of its diagnosis. More deceptive indications could not have been found than the duration of the swelling and the strange simulation of an abscess. The surgical interference seemed to determine a fresh malignancy of singular violence. Page thinks that it might have been better if the patient had not been subjected to an operation. Wide dissemination of sarcoma soon followed the major operation, and as general tuberculosis is known to follow operations on local tuberculous diseases, it may be that the spread of sarcoma is likewise determined.

The second case was clearly the less malignant of the two, and no evidence exists that operation was answerable for spread of the disease even though the wound was septic. In this case it seems justifiable to assume that removal of the extremity secured both freedom from suffering and prolonged life.

Serious shock was not pronounced in either case, attributable in a large degree to preliminary ligation of the subclavian artery and the avoidance of blood loss.

TREATMENT OF CANCER.

LAUNOIS (*La Semaine Médicale*, 21 an., No. 9) reports excellent results in the treatment of incurable cancer under the influ-

ence of repeated hypodermic injections of hydrosulphate of quinine.

Tuffier noted a marked improvement in a huge malignant ulcer incident to hypodermic injections of cacodylate of soda.

Quenu laments the fact that both quinine and the cacodylate of soda were absolutely inoperative in his hands, whilst the serum of Wlaiev was even prejudicial.

Berger notes that this serum sometimes produces an improvement in the local and general symptoms, but that the cancer itself never shows the least sign of getting well, nor does he believe that there lies in any of the recently proposed medicaments and treatments against cancer the slightest hope of the discovery of a cure. Nimier is in accord with this observation.

TREATMENT OF CHRONIC HYDRARTHROSIS OF THE KNEE.

DEBAISIEUX *(La Semaine Médicale,* 21 an., No. 9) has modified to some extent the treatment of hydrarthrosis which has been formulated by Schede. It will be remembered that this treatment consisted in puncturing the articular cavity, aspirating or drawing off the contained liquid, and washing out the synovia several times by means of a three-per-cent carbolic acid solution. After having injected this carbolic acid solution, it is sometimes extremely difficult to withdraw it because there is formed a coagulum by the action of the carbolic acid upon the contained fluid, which readily blocks the cannula. To prevent this the injection of carbolic acid is preceded by one of sterile physiological serum. After the joint has been thoroughly washed out with this and with the carbolic acid, a pressure bandage is applied and the member is immobilized for two weeks, after which massage and faradization are begun.

PARALLELISM OF THE LOCAL AND GENERAL LEUCOCYTOSES IN MORBID PROCESSES.

ACHARD and LOEPER *(La Semaine Médicale,* 21 an., No. 9) note from a large number of studies that there is a similarity in morbid processes of the local and general leucocytoses; that the presence of polynuclear leucocytes and medullary elements is characteristic of transitory affections, whilst the mononuclear leucocytes and the lymphocytes are characteristic of affections which cause the formation of more or less durable tissue. In pneumonia, abscess, angiocholitis, and acute peritonitis, for instance, polynuclear leucocytes are found both in the blood and in and about the inflamed area. In subacute affections, such as tuberculosis, syphilis, and leprosy, the nodules are invaded by mononuclear leucocytes, and in the blood there will be found a predominance of these elements. In cancer there is often both a local and general polynucleosis, denoting usually infection, sometimes the activity of the tumor. In chronic affections, such as sclerosis, chronic hepatitis, and renal atrophies, mononuclear leucocytes are found in considerable number in the sclerosed region.

SYPHILITIC REINFECTION.

MRACEK *(La Semaine Médicale,* 21 an., No. 9) reports the case of a patient who seven years before, having contracted a chancre, was treated subcutaneously by injections of sozoiodolate of mercury and had mouth administrations of potassium iodide. No secondary lesions ever followed, but seven years later there developed a second chancre, followed by a general skin eruption and typical glandular enlargement.

Neumann states that he has personally observed eight cases of syphilitic reinfection, and the shortest interval between the attacks was two years. He holds that the possibility of reinfection proves beyond doubt the curability of the disease.

FOREIGN BODY IN RIGHT BRONCHUS.

GAREL *(Lyon Médical,* Jan. 6, 1901) records the following case: A child, aged eighteen months, put an iron nail, 53 millimeters long, into his mouth. He at once suffered from dyspnea and became cyanosed. He was held up by the heels and shaken, but the nail was not recovered, and was thought to have been swallowed, as the patient soon became comfortable. The stools were carefully examined for two months in vain. The child was then troubled with a constant cough, and became pale and thin. Harsh breathing and râles were heard over the right lung, especially at the apex, and a physician, to whom the accident was only casually mentioned, diagnosed phthisis. By means of the Roentgen rays, however, the nail was

clearly shown in the right bronchus. It was extracted through a tracheotomy wound without difficulty by means of an electromagnet, under a tension of four volts only. The child made a good recovery. Garel believes his success to have been due in great measure to the use of the magnet rather than to the forceps. He would, he thinks, in a similar case in future attempt extraction without tracheotomy. By Kirstein's method—that is, forcibly extending the head and strongly depressing the tongue—a straight-tube speculum may be passed and illuminated by means of a small electric lamp. Thus all the larger bronchi may be directly brought into view. This method, however, is difficult in practice, carries with it a certain danger of asphyxia, and should not be attempted except in chronic cases. Without this the course of operation could be followed by Roentgen's fluorescent screen.—*British Medical Journal*, March 2, 1901.

GASTRIC HEMORRHAGE AND ITS SURGICAL TREATMENT.

ROBSON (*Scottish Medical and Surgical Journal*, March, 1901) urges that all cases of acute uncomplicated gastric ulcer should be submitted to thorough medical treatment in the shape of long-continued rest and attention to diet, the cases not being allowed to get up or resume solid food until at least a fortnight after all disappearance of pain.

Where the ulceration persists and proves intractable to medical treatment, or where relapses occur, gastroenterostomy should be performed, so as to secure physiological rest and relieve the hyperacidity of the gastric juice nearly always found in such cases.

Perforation demands immediate surgical treatment.

The complications of disabling adhesions around the stomach and pylorus, pyloric contraction and hour-glass contraction due to chronic ulcers leading to pain, dilatation, loss of flesh and general impairment of health, and now often treated as chronic indigestion, should be treated surgically.

In recurring or so-called chronic hematemesis from gastric ulcer, surgical treatment is decidedly called for.

In acute hematemesis, further accuracy in diagnosis as to the size of the bleeding vessels is urgently needed; and the cooperation of the physician and surgeon is advisable in all cases of hematemesis, so that if relief be not obtained by medical and general treatment, surgical means may be adopted if the bleeding is believed to occur from a large vessel; but seeing that capillary hemorrhage is capable of relief by medical means alone, medical should always precede surgical treatment.

ACUTE CELLULITIS TREATED BY ANTISTREPTOCOCCIC SERUM.

KELLY (*Scottish Medical and Surgical Journal*, March, 1901) treated a strong man of twenty-eight who suffered from acute cellulitis by antistreptococcic serum. Before this treatment was begun incisions were made with only temporary relief.

The patient had been wounded superficially in the web between the fore and middle fingers of the right hand; a small abscess formed, and after the abscess had been squeezed the hand began to swell. The incisions made for relief producing only a temporary result, it was determined to adopt more extensive treatment.

Under chloroform, the arm and hand were freely incised and drained, and dressed with aseptic gauze.

The seropurulent discharge from the wound was examined microscopically and found to contain streptococci.

Under strict antiseptic precautions, ten cubic centimeters of antistreptococcic serum was hypodermically injected into the left side of the abdominal wall immediately after the operation. The patient became delirious, and remained so for thirty-six hours.

Next day the temperature was 100.6°, so a second dose of serum was injected into the right side of the abdomen. The dressings were removed, and the arm was soaked for two hours in a warm solution of boric acid. The swelling was much reduced, there was free discharge of thin, fetid, seropurulent fluid, and the pain was greatly lessened. The temperature rose slightly, but two days later it was 98.6°. When it rose again to over 100° a third injection was given in the left epigastric region. This was again followed by a rise of temperature to 102°, followed by a fall in the night to normal. The arm was

again soaked in warm boric solution for two hours in the morning, and for an hour at night, which treatment was continued for twelve days. The temperature gradually became lower.

On about the third day after operation, and the following three days, the drainage-tubes were removed, and the edges of the wounds approximated by catgut sutures, they having become quite free from any appearance of pus.

The patient rapidly recovered. In a few days after going into the open air he was attacked by a severe general urticaria, and at the same time a swelling in the abdominal wall was noticed to be more pronounced and distinctly fluctuating. The use of boric acid in the bath was at once stopped without effect. Various measures were tried without relief, and in about two days after examination of the swelling an incision was made in the left hypogastrium over the swelling. A large amount of pus was evacuated, the abscess was drained, and almost immediate relief from the pain of the urticaria was experienced. In a few hours the rash had disappeared, and the temperature had returned to normal.

The abdominal drainage-tube was removed on the third day, and the wound healed rapidly. The pus obtained by the evacuation was found to be teeming with streptococci, and a typical culture was obtained.

Meanwhile, the wounds of the arm and hand were healing rapidly, and the patient returned to business twenty-two days after the first injection of serum.

Kelly believes that the rapid improvement was not entirely due to the other methods employed apart from the use of antistreptococcic serum.

The occurrence of a rash so long after the injections was probably due to the serum.

Kelly is prepared to use the serum in any suitable case, after weighing impairment of function or actual loss of limb or even life against the chances of cure by treatment without the serum.

MEDIAN OSTEOTOMY OF THE HYOID BONE.

VALLAS *(Revue de Chirurgie,* May, 1900) has devised an excellent means of gaining access to the lower parts of the pharynx and the vestibule of the larynx. The operation is indicated for the removal of foreign bodies, of benign neoplasms, of epiglottic cancers, and for the treatment of syphilitic strictures. Tumors of the base of the tongue and even the whole of that organ may be removed by this method. Preliminary tracheotomy, at first thought necessary, has been given up.

Make a vertical median incision from the symphysis menti to the superior angle of the thyroid cartilage. Separate the fibers of the mylohyoid muscle in the middle line. Expose and divide the hyoid bone in its middle. Retract the two halves of the bone laterally along with the mylohyoid muscles. A space one and one-half inches wide is thus easily exposed. The lower part of the wound is only separated from the pharynx by the thyrohyoid membrane, the upper part by the buccal mucosa. If the object of the procedure is to reach the lower pharynx, cut downward through the thyrohoid membrane; if the root of the tongue is the objective, cut upward. The wound is closed by sutures. Drainage of the lower part of the wound is proper.

When excising the tongue, Vallas first ligates both lingual arteries, and through the same incisions removes the submaxillary glands. He then performs hyoid osteotomy as above described, but does not divide the thyrohyoid membrane. The submental wound is only separated from the mouth by the mucosa. An assistant opens the mouth with a suitable gag, and the surgeon, through the mouth, divides the frenum, the floor of the mouth, and the inferior and lateral connections of the tongue, including the anterior pillars of the fauces. The tongue is manipulated by a traction suture placed through it, or by vulsellum forceps. The tongue is now connected with the body by the hyoglossus muscles alone. Place the patient in a sitting posture with the head inclined forward, and proceed with the next step rapidly, for fear of asphyxia. Pull the tongue out through the submental wound until the epiglottis appears. With the finger passed over the tongue feel for and recognize the two halves of the hyoid bone. With the scissors hugging the upper margin of the hyoid, divide the insertions of the hyoglossus muscle. This completes the operation. Closure of the wound, and the rest, is accomplished on ordinary surgical principles. —*Annals of Surgery,* March, 1901.

IODIDE OF POTASSIUM TREATMENT OF HUMAN ACTINOMYCOSIS.

LIEBLEIN *(Beiträge zur Klinischen Chirurgie,* Band xxviii, Heft 1) offers a much-needed critique of the status of iodide of potassium as a curative agent in human actinomycosis. Sixty-two reported cases are analyzed, of which forty-two were healed, seven improved, two successfully treated, one without success, incomplete four, death six, the jaw being most frequently represented, and the lung and intestine in about equal number. The iodide of potassium is most efficient in jaw actinomycosis, least in the pulmonary form. Where iodide of potassium alone was relied upon, three deaths ensued; but these were too advanced to be even benefited by operative treatment.

Of greater interest are observations on the use of iodide of potassium after unsuccessful operative interference. Once death supervened, once marked improvement, and three times cure. One of the last group was twice ineffectually operated on. The necessity of operative interference after unsuccessful application of iodide treatment arose three times. In these latter instances the iodide was given for too short a time.

At this point the author passes on to the method of giving iodide of potassium. It was only found serviceable when given for several months or more. Treatment for one year or more was only called for in the severest cases.

As to the modes of action of iodide of potassium, it is pointed out that by the disintegration of the cellular infiltration, and its discharge through fistulous tracts, the expulsion of the ray fungus is effected. In support of this theory is the bacteriological observation that iodide of potassium does not inhibit the growth of the ray fungus, and coupled to this is the clinical observation that the cases with sinuses coexisting come to a more speedy termination under iodide of potassium treatment. The advent of any mixed infection retards, and even wholly prevents, beneficent action of iodide of potassium. The quantity of iodide of potassium given fluctuated between 100 and 300 grammes; one case taking, *in toto,* 4000 grammes. Recurrences were only apparent because of insufficient treatment, and disappeared wholly when properly administered. But recurrence also took place after operation, no matter how seemingly thoroughly it was done.

Limitations of iodide of potassium treatment, because of its slowness of action, exist when the disease is of an acute phlegmonous character, and when the individual is very cachectic. Here it is merely an adjuvant to surgical measures. In these respects we have analogous conditions in syphilis. Thus, while iodide of potassium is no specific, it is a remedial of no mean order antagonistic to actinomycosis, and worthy of an extended trial in proper doses for a long period in every instance. Thus, in Wölfler's clinic it is the practice to give three grammes in increasing doses three times daily. The affected area is also covered with compresses of iodide of potassium, or a tract or cavity tamponed with iodide of potassium gauze. The diminution in size of the swelling is ever slow but steady.—*Annals of Surgery,* March, 1901.

TREATMENT OF SCIATICA BY COCAINIZATION OF THE SPINAL CORD.

MANEGA *(La Semaine Médicale,* 21 an., No. 9) has published a case of hemiplegia associated with agonizing pain of the paralyzed leg which was cured, and permanently, by one subarachnoid injection of cocaine. Encouraged by the success attending this case, Pulle treated in a similar way a case of sciatic neuralgia which had failed to yield to the ordinary medicaments—0.75 cubic centimeter of a two-per-cent cocaine solution was injected. Pain disappeared at once and finally.

Reviews.

CLINICAL PATHOLOGY OF THE BLOOD. By James Ewing, A.M., M.D.
Philadelphia and New York: Lea Brothers & Co., 1901.

Ever since the announcement was made that this book was in course of preparation we have been looking forward to its publication with interest, because we believe that a modern book upon this subject is needed, and also because we knew that Dr. Ewing was capable of preparing one which would meet all the requirements both of the laboratory investigator and the clinician. It is an interesting illustration of the advances which have been made in clinical medicine that it is possible for a skilful author to write a book of 432 octavo pages dealing

entirely with the physiology and pathology of the blood. Twenty years ago this field of clinical research was almost untouched, and we were just beginning to recognize the importance of investigating the blood in many cases of disease.

An examination of Dr. Ewing's work reveals the fact that there is no padding used to make up these 432 pages, and that every particle of material which the book contains is worthy of inclusion.

The first or introductory portion of the book deals with the interpretation of analyses of the blood, and this, we think, is one of the most important portions of the volume. While the introduction of many books may be avoided with no loss, this one should be read by every one who is engaged in the active practice of medicine. The first part deals with the general physiology and pathology of the blood. In other words, Part I deals with the various chemical and technical tests which should be employed, the variations in the shapes and developments of the cells, the leucocytes, leucocytosis, and with the development of blood cells, while Part II deals with a discussion of the changes found in blood in different tests, such as chlorosis, pernicious anemia, and leukemia. Part III deals with the blood in the acute infectious diseases; Part IV with the changes in this tissue in constitutional diseases; Part V with alterations in it in diseases of the viscera; and Part VI with the changes which take place due to the presence of animal parasites.

We can cordially commend Dr. Ewing's book to our readers, be they practical clinicians or laboratory investigators; for, on the one hand, it is written in such a form as to be easily read, and possesses distinct practical bearing, and on the other hand, it is so carefully prepared, and technical methods are so well described, that it will lend itself as a most useful book to the laboratory investigator. It is not often that we wax enthusiastic over a work dealing with one subject alone, but it is our intention to keep this book constantly at hand and to refer to it daily.

A Manual of Diseases of the Nose and Throat. By C. G. Coakley, A.M., M.D. Revised and enlarged.
Philadelphia and New York: Lea Brothers & Co., 1901.

It is not many months since we favorably reviewed the first edition of this little manual, and that our good opinion of the work at that time was correct has been proved by the appreciation shown by the profession for the author's labors. He has seized upon the opportunity to revise such portions of the work as he thought needed revision, providing a new chapter upon the infections of the upper respiratory tracts in the infectious diseases, and also adding some colored plates and black and white sketches. Many books at the present time have colored plates in them which, while attractive to the eye, are not of great value for the man who is desirous of understanding exactly what he should do for the patient before him. Dr. Coakley's work, on the other hand, seems to us to contain illustrations which are distinctly useful as illustrating the text. It must be distinctly understood that this is not a complete or exhaustive work dealing with the subjects named, but a clinical manual which does not deal so much with the literature of its theme as with the practical application of important methods for the cure of maladies in this portion of the body.

A System of Physiologic Therapeutics. Edited by S. Solis Cohen, A.M., M.D. Volume I.
Philadelphia: P. Blakiston's Son & Co., 1901.

The object of this System, which is to be published, we believe, in about fifteen volumes, is to provide the practitioner of medicine with a practical exposition of the methods, other than drug-giving, useful in the treatment of the sick. In other words, it deals with remedial measures rather than drugs; and the first volume, which is to appear in two books, of which this is Book I, deals with electrotherapy and the apparatus required for the therapeutic and diagnostic use of electricity. This particular book is written by Dr. George W. Jacoby, of New York, and the balance of the volume is written by Edward Jackson, M.D., of Denver, Colorado; William Scheppegrell, M.D., of New Orleans; J. Chalmers Da Costa, M.D., of Philadelphia; Franklin M. Martin, M.D., of Chicago; and A. H. Ohmann-Dumesnil, M.D., of St. Louis. The latter half of this volume, or Book II, is now ready. Succeeding volumes are to deal with Climatology and Health Resorts, Including Mineral Springs; Prophylaxis, Personal Hygiene, Nursing and Care of the Sick; Dietotherapy; Mechanotherapy; Rest, Mental Therapeutics, Suggestion; Hydrotherapy; Thermotherapy; Phototherapy, Balneology; Pneumatotherapy and

Inhalation Methods; Serotherapy, Organotherapy; Blood-letting; Principles of Therapeutics; Indexes and a Digest. It is evident that the editor has striven to provide the profession with a most exhaustive contribution to what he calls "Physiologic Therapeutics." The first volume is necessarily not as interesting to the general practitioner as will be its successors, since it deals, as we have pointed out, solely with electrotherapy, or rather, to speak more accurately, with the various methods of developing electricity for its employment in disease. As we have already pointed out, the special application of electricity to various diseases is to follow in Book II of Volume I.

We are exceedingly glad that an American editor and publisher has undertaken the compilation of such a useful reference work. Judging by the first volume and by the ideas which are embraced in the editor's preface, it will be a most creditable contribution to medical literature, and we look forward to the publication of future volumes with much interest and pleasure, wishing the work all the success that it deserves. If the subsequent volumes deal as thoroughly and capably with the themes to which they are devoted as does Book I of Volume I, the editor will be congratulated upon having accomplished a very laudable undertaking most successfully.

DIPHTHERIA. A Study of the Bacteriology and Pathology of Two Hundred and Twenty Fatal Cases of Diphtheria. By Dr. W. T. Councilman, Dr. F. B. Mallory, and Dr. R. M. Pearce. Boston: Published by the Authors, 1901.

This is a paper-covered volume of nearly 200 pages, including the text and bibliography, to which are added no less than seventeen beautiful plates illustrating the microscopical appearances of the tissues which have been examined after removal from diphtheritic cases. The whole object of the essay is to bring together the best results of investigation, as far as it has gone, and to add to these results the original investigations which have been made by these eminent bacteriologists.

The introductory pages deal with material employed, mixed infections, and after this with the various phases of the bacteriology of diphtheria, including the various organs in which the bacteria are found. The second portion of the work deals with pathology; with the diphtheritic membrane, its distribution and character, and the changes which take place in the heart, lungs, spleen and other important organs when the patient is infected by the disease. After studying the influences of the poison of the disease upon the various organs, a summary is given of the views of the authors concerning the changes which have taken place, which adds very materially to the value of the book in the hands of the general practitioner and pathologist.

The work is a most creditable production, of which not only the investigators themselves but the whole American medical profession ought to be proud.

UTERINE FIBROMYOMATA. By E. Stanmore Bishop, F.R.C.S. Eng.
Philadelphia: P. Blakiston's Son & Co., 1901.

This book is characterized by admirable illustrations, but it is chiefly to be commended because of a very complete and satisfactory description of operative technique.

The first chapter is devoted to general considerations; then follows a brief but very satisfactory discussion of anatomical considerations. There are chapters on symptomatology, diagnosis, secondary changes, electricity, and a general survey of surgical treatment.

For the preparation of catgut the author gives preference to Pozzi's process. This consists in removing the oil with juniper, placing the gut for four hours in a sterilizing oven at 284° (probably F.) for one hour in an aqueous solution of hyd. bichlor. 1:1000, then for eight days in ol. juniper. The gut is preserved in alcohol with one-tenth part oil of juniper. Before using, it is put in aqueous sublimate solution.

As for dressings, the author states that for some time he has almost ceased to use them, preferring to seal his wounds with celloidin.

In describing the various operations, Kelly's last method of splitting the uterus, applicable to extremely difficult cases, is not mentioned.

As to postoperative treatment, the author calls attention to the fact that if celloidin has been applied after abdominal celiotomy, or, in vaginal cases, if the pelvic peritoneum has been closed, it is not necessary to keep the patient rigidly upon her back. He permits his patients to lie in any way which is most comfortable, allowing the nurse to turn them from time to time. This freedom is only made possible (1) by abandoning the drainage-tube; (2) by absolute security as to internal ligaturing of vessels;

(3) by certainty as to accurate suturing of the aponeurosis; and (4) by reproduction of the smooth, closed sac.

The dressing material is a solution of celloidin in alcohol and ether, made according to the following formula:

Celloidin, 1 part;
Abs. alcohol, 4 parts;
Ether. sulph., 4 parts.

It is applied with a brush to an absolutely dry surface. This dryness is obtained by washing the part quickly with ether. It sets in about thirty seconds.

For chloroform sickness the author administers sips of hot tea, places mustard to the epigastrium, and gives three-minim doses of ten-per-cent solution of cocaine, repeated every half-hour. He states that ice is poisonous and should never be used. Within twelve hours after operation he gives three grains of calomel combined with an equal quantity of Dover's powder, and just enough hot tea to wash it down. This is repeated in one or two hours as may be necessary. If there has been any suspicion of soiling of the peritoneum by discharges, he does not hesitate to give three doses, one every hour.

The author contributes a valuable chapter upon the after-effects of operation.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., F.R.C.P. Lond.

Nasal tuberculosis can hardly claim to have established a place for itself in the category of disease as more than a pathological curiosity. Dr. Knowles Renshaw in a recent thesis has sought to bring the condition out of its obscurity. The total number of published cases of nasal tuberculosis is 116, and about thirty of these are undoubtedly primary. In the primary cases the lesion is almost invariably polypoid, whereas in the secondary cases ulceration is the more common form of the disease. Herzog has suggested that the nature of the lesion depends on the number of bacilli entering the nose. In cases of phthisis, for instance, where they are numerous, the tissues are severely affected and ulceration ensues, while with a lesser irritation from fewer bacilli, granulation tissue is formed and a polypoid lesion results. In this country the affection has rarely been noted even as a curiosity, but probably if searched for it would explain many obscure diseases of the nasal passages, and being for the most part situated in readily accessible parts of the nose, should be amenable to treatment.

The questions that suggest themselves have some or all been investigated experimentally by Dr. Renshaw. He has shown that it is possible to infect the nasal mucous membrane, in a susceptible animal, by simply introducing sputum containing the bacilli in a virulent condition, without producing artificially any abrasion of the mucous membrane. The sputum used was derived from phthisical patients, and the presence of bacilli was determined by the microscope; it was introduced either by means of a brush or through a cannula into different parts of the nasal passages. All the guinea-pigs experimented on showed definite signs of local irritation. It must, however, be borne in mind that guinea-pigs possess a higher susceptibility to tuberculosis than man, else nasal tuberculosis would needs be exceedingly common in man. Renshaw thinks that the constant flow of mucus from the nasal mucosa is an important protective agent. Infection having occurred, the disease in the animals infected tended to a chronic course. In no case was any difference observed between infected and healthy animals for the first fortnight, and in only one case was any enlargement of the cervical glands observed before the twenty-eighth day. In some cases the peribronchial glands and thoracic or abdominal viscera became infected about the end of the sixth week, but when the infection was confined to the anterior parts of the nostril, at a much later period. Presumably then the further from the entrance of the nostril the disease is situated, the more rapid is the generalization of the disease.

It would seem likely that a tuberculous lesion in the nostril might lead to infection of other organs by three main routes: through the cribriform plate to the meninges; with the air-current to the larynx and trachea, and thence to the lungs; and by the lymphatics of the part to the glands, and so into the general lymph-stream. In Renshaw's experiments there was absolutely no evidence of infection of the meninges, in spite of the fact that in several instances there was extensive ulceration of the mucous membrane and necrosis of the bones

surrounding the superior fossa. There was just as little evidence of infection by the air-current, for in all cases the large respiratory channels were free from disease, and when the lungs were infected there was strong evidence to show that this was brought about through the lymphatics, simultaneously with infection of other organs. It should be borne in mind that air entering by the nostrils was compelled to traverse active and extensive tuberculous disease on its way to the lungs, so that the natural provision for disinfection must be one of great perfection. In every instance the lymphatics were the track by which other organs were invaded. The first sign of this was enlargement of the superficial cervical glands about the fourth or fifth week, followed a week or two later by enlargement of the deep cervical glands; from these the infection spread to the peribronchial and retrohepatic glands, and thence to other organs. Dr. Renshaw suggests that some of the cases of strumous glands of the neck in human patients, in which no obvious primary seat can be found, may be due to nasal tuberculosis.

Dr. Ritchie contributes some important observations on the bacteriology of bronchitis to the current number of the *Journal of Pathology*. The main points may be thus summarized:

1. Acute bronchitis is an infective disease.

2. It is not due to any specific microorganism; various bacteria are found in the bronchitic secretion.

3. Some of these bacteria are exciting causes of the bronchitis.

4. The disease is more often due to mixed infection than to the action of one form of bacterium alone.

5. The most important causal bacteria are diplococcus pneumoniæ and streptococci.

6. The influenza bacillus not infrequently causes bronchitis, apart from epidemic influenza.

Lack at a recent meeting of the Laryngological Society reviewed the basis of the rational treatment of nasal polypus. He contends that a polypus is simply a localized patch of edematous mucous membrane, and that this edema is a result of disease of the underlying bone. The histological evidence of this view is strong: a polypus consists of loose fibrous tissue, the meshes of which are filled by serous fluid; it is covered by the normal epithelium, and contains vessels and glands; obstruction of the ducts of the glands by the pressure of inflammatory exudates may lead to cystic distention; the presence of inflammation is evidenced by thickening of the vessel walls and round cell infiltration, especially about the vessels and glands. Such a condition is quite distinct from granulation tissue. Clinically there is every stage between edema of the mucous membrane and a polypus—a slight edema, a marked localized edema, a broadly sessile polypus, and a typical pedunculated polypus. It is purely a question of degree and a matter of nomenclature, as the microscopical structure of each is identical. Lack holds that this edema is unquestionably due to disease of the underlying bone; in some thirty cases examined by himself the underlying bone was in a state of rarefying osteitis. The process seemed to begin as a proliferation of the cells in the deeper layer of the periosteum. Large osteoclasts in considerable numbers erode the surface of the bone; at the same time enlargement of the bone cells themselves gives the bone a more cellular appearance. By this process of rarefying osteitis the bone becomes slowly disintegrated, and the fragments, surrounded on all sides by osteoclasts, are slowly eaten away and absorbed. Clinically, by digital examination under general anesthesia, loose spicules of bone may be felt in the soft jelly-like tissue, and in some cases the probe may determine the presence of bare bone. Sometimes in severe and neglected cases of polypus, if the polypi are removed with the snare without touching the bone in any way, it may sometimes be seen that the entire middle turbinate bone has disappeared, and its place has been filled up by masses of small polypoid-looking growths. These facts serve to explain the liability to recurrence after simple removal, and the absence of recurrence when the diseased bone is completely removed. The polypoid character of the edema may be assigned to the dependent position of the growths and the action of gravity. Also that growth takes place only from the ethmoidal region of the nose where the bone is covered by a thin muco-periosteum, and that they are more common on the middle turbinate and about the regions of the ostia of the accessory sinuses where the mucous membrane is excessively lax.

Treatment should be based on a full rec-

ognition of the essential morbid histology. In cases in which no sign of active disease is still present, and the initial bone disease has passed off, simple removal with the snare will suffice. In simple cases of early bone disease, in which there is enlargement of the anterior end of the middle turbinate, with overlying edema of the mucous membrane, the disease should be removed by amputation of the anterior end or more of the middle turbinate. In cases in which only a few polypi are present, and in which there is a very limited area of bone disease, the snare may be used, taking care to encircle the piece of bone from which it grows. Subsequently all diseased bone and mucous membrane should be clipped away by Grünwald's forceps. In the cases of extensive bone disease in which there are many polypi involving an extensive part of the ethmoid, it is best to give the patient a general anesthetic and remove not only the polypi, but the whole of the affected part of the ethmoid bone. Lack describes his operative procedure as follows: "The patient being anesthetized, the ethmoidal region is thoroughly examined by the finger, both through the nose and also through the postnasal space, to determine as far as possible the extent of the disease. If the middle turbinate be present it may be removed by means of the spokeshave, and any large polypi should be removed by means of the forceps. Then the lateral mass of the ethmoid should be thoroughly scraped away by means of a large ring-knife, such as Meyer's original adenoid curette. This is the only effective instrument; sharp spoons are quite useless. In this way large masses of polypi, degenerated mucous membrane, and fragments of bone are removed. The finger is introduced from time to time to observe the progress, to feel for any spicules of bone and soft patches, and the scraping is continued until all friable tissue has been removed. Healthy parts of the ethmoid are easily distinguished by the finger and even by the curette, as they are smooth, firm, resistant, and give little hold to the knife. In some cases the operation is completed by a smaller ring-knife, but this must be employed with the greatest care. Of course, great caution must be used when it is felt that the region of the cribriform plate is being reached, but the whole inner wall of the orbit may be scraped away with impunity. The operation should be performed with the patient turned well over on to his side, and in cases where the posterior part of the ethmoid is unaffected, a large sponge may be pushed up into the postnasal space. Directly the operation is over, hemorrhage is arrested by packing the nose with a strip of gauze soaked in glycerin-iodoform emulsion, and a piece of lint soaked in evaporating lotion is then applied to the face. This gauze packing should be changed every second or third day, and the nose irrigated. If it is easily tolerated it may be continued for a fortnight; in other cases it should be omitted earlier." Granulations may spring up in the field of operation, but these usually disappear spontaneously in a few weeks. After five to eight weeks a large dry cavity, lined by healthy adherent mucous membrane, will be seen in the upper part of the nose.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

It has been often said that Frenchmen rarely leave their native land, and one must admit that French physicians do not travel much outside of their own country. As for visiting America, such a journey would seem to most of them so tremendous an undertaking that it is not to be wondered at that so few cross the ocean. This state of things is beginning to change, however, and an excursion undertaken recently by a number of physicians to foreign universities tends to show that French doctors are being awakened to the fact that there is a good deal they should inquire into outside their own country. This excursion was planned by Dr. Jayle, the assistant of Professor Pozzi, and was quite a success. The excursionists visited Lille, then Liege in Belgium, where they were most hospitably received by the professors of the faculty, Drs. Fraipont, Malvoz, and Winiwarter, who gave them a dinner, at which Dr. Vanclair was present. Several of the clinics were shown them, and one especially, the ophthalmological clinic, seemed to be most admirably arranged. There are special rooms for ophthalmoscopy, ophthalmometry, a special laboratory of histology and bacteriology. Embryology, which is under the direction of the celebrated van Beneden, is well studied, a whole semester being set apart for following the courses.

The next place visited was Cologne, where the Burger Hospital was inspected. The most important part is the service of Professor Bardenheuer, which contains 700 beds. One noticeable fact is the great number of cases of surgical tuberculosis, and also the extreme care that is taken of fractures. Quite a number of complicated apparatus were shown the visitors.

Bonn was the first German university on the programme, and it is in this town that the Crown Prince of Germany is at present studying. This place gave an impression of calm student life. The Institute of Pathology is the most noticeable feature, it being under the direction of Professor Köster. As for the Institute of Anatomy, which is supervised by Professor Schiefferdecker, it is far less worthy of notice. The dissecting tables are small and badly put together, and serve alternately for dissection and histology. The clinics are situated in quite a different part of the town. In the maternity, which is under the control of Dr. Fritsch, there are three classes of patients: the first class pay 8 marks a day, and are lodged in rooms containing only one bed; then there are rooms containing two beds, where one pays only 5 marks 30 pfennigs a day; and lastly, the ordinary wards, containing fifteen to twenty beds, where the price is 2 marks 50 pfennigs. In Dr. Schultze's clinic the wards contain only six, eight, or ten beds. The rooms are large, well aired, well ventilated, and are furnished in some cases with a veranda where tuberculous patients can be treated.

The discussion on the method of Bier, or rachi-cocainization, is far from finished. After Dr. Tuffier's defense, where he analyzes the six cases of death furnished by Dr. Reclus, there appeared another speech by the latter before the Society of Surgery. In this speech Dr. Reclus discusses each part of Tuffier's article, and one cannot help feeling that all he says is full of moderation and good sense. He declares that, though Corning was in a way a predecessor, Bier is the real author of the method; he admits that Tuffier's method is the best so far, but the different details of his technique have been borrowed from others. Dr. Tuffier had spoken sarcastically of surgeons who were obliged to puncture in several places to find the right spot, and Dr. Reclus remarked that this phrase did not seem to apply to any one in particular. Dr. Marx, of New York, had been obliged to try six times in one case, but he has already made 125 lumbar injections, and could not be accused of lacking experience. As for the cases of death observed, Dr. Reclus analyzed them one by one, and showed that the injection of cocaine might have had some influence. Tuffier's case, for instance, is as follows: Two hours after cocainization asphyxia set in, and the patient died almost immediately, though tracheotomy and artificial respiration were resorted to. The autopsy showed that there was a mitral lesion and acute edema of the lung. Goilav's case, as well as that of Jonnesco, should be set aside, according to Dr. Tuffier, because the autopsy was not made; still the rapidity with which death came on in Goilav's case would seem to indicate that the operation itself was not the unique factor. Serious accidents have also been observed by Anderson of Chicago, MacDonald, Kocher of Bern, and Sorel of Havre. Dr. Tuffier states that the statistics furnished about narcosis by chloroform or ether are false, and Dr. Reclus agrees with him, but hints that it is due to the general habit of confiding this to an inexperienced medical student. Dr. Reclus concludes his article by saying that, such as it is, medullar cocainization is uncertain and of doubtful value as a method of anesthesia.

Several other prominent surgeons in Paris have been trying this same method, and at a meeting of the Society of Surgery on the 22d of May they indicated the result of their researches. Professor Lejars had only used it thirty-three times, but had found it best to defer trying it again till the method had been perfected. He adduced the following arguments against it: The insertion of the needle being not always easy; the irregularity of the anesthesia as to appearance, localization, intensity, and duration; and lastly, the vomiting which takes place sometimes during the operation. This method should, however, be used when the patient is affected with pulmonary trouble, or does not wish to take chloroform or ether. Dr. Legueu has already used cocaine 150 times, and in four cases there was no result. The analgesia was perfect in about 100 cases, and in fifty cases sufficient. In one-third of the cases there was vomiting and tremor of the limbs, and in ten cases incontinence

of the anal sphincter. Cephalalgia was of frequent occurrence; paralysis of the legs was seen once, but only lasted a few days; retention and incontinence of urine were also seen once. Dr. Legueu thinks that the use of cocaine cannot be shown as yet to be more dangerous than that of chloroform.

The pharmaceutical expenses in the hospitals have been increasing yearly in Paris, and a notice was sent recently to the physicians asking them to do their utmost to reduce the expenditure entailed thereby. Some of the items indicated in this report are of interest as showing how fashions in drugs change with time. Codeine was not much used at one time, only two kilogrammes being employed, whereas now forty-five kilogrammes are found necessary. Moreover, the price has gone up from 400 to 700 francs a kilogramme. The amount of alcohol used is also very large, in value 135,000 francs. Musk costs 4500 francs, pilocarpine 3000 francs, digitaline 30,000 francs, and homatropine 20,000 francs the kilogramme.

Dr. Lermoyez, physician of the hospitals, has written an article in the *Presse Médicale* in which he ridicules the statement that physicians of the hospitals are extravagant in the use of drugs. After a word or two addressed to the very distinguished secretary of the Assistance Publique, who is replacing the general director, now deceased, he remarks that the circular shows how advantageously codeine might be replaced by morphine, which costs one-third less. Now cocaine is supposed to cost 800 francs per kilogramme, but as only ten centigrammes is necessary to produce local anesthesia, the actual cost is only eight centimes, or a cent and a half. Pilocarpine costs 3000 francs, it is true, and each time that Dr. Lermoyez has occasion to order it in his service he sees his druggist come to expostulate, and yet only fifteen injections are requisite to cure a labyrinthic affection, which makes an expenditure of nine cents. Of course, where the greatest expense is to be found is in the use of digitalin, which costs 30,000 francs the kilogramme. Dr. Potain, who is responsible for the use of this alkaloid in the French hospitals, can hardly be remembered with pleasure by the functionaries of the Avenue Victoria, the headquarters of the Assistance Publique. Still he would plead that it is only necessary to give a milligramme to bring back to life a patient suffering from mitral regurgitation, and that it does not seem to be so very much to spend two cents to cure three cases of asystolia.

At a recent meeting of the Society of Therapeutics, Dr. Herard de Besse advocated a new treatment of cancer, which consists in the local application of Flemming's solution of osmic acid and interstitial injections of the same preparation. The urine did not seem to be affected to any appreciable extent, and the results obtained were manifest diminution of the pain and a decrease in the secretions and fetor. This treatment can be compared favorably to that by methylene blue. Chloride of calcium has been recommended recently as a treatment of excessive menstrual flow, and the following formula has been indicated:

Chloride of calcium, 9 grammes;
Syrup of sugar, 60 grammes;
Water, 180 grammes.
Two large spoonfuls daily.

This should be taken a whole week before the period expected. Chloride of calcium should not be given, however, when renal lesions are found.

The German mineral waters are more known in America than the French ones of the same category, thanks to the judicious system of improvement and advertising carried out by the promoters of these watering establishments. Amongst French watering-places, however, there is one which preserves its world-wide reputation, and which from a financial point of view is in a very prosperous condition, and this is Vichy. Its sources and its establishment belong to the State, but the latter rents it to a company, who have just renewed their lease for thirty years, with the understanding that they will spend ten millions of francs in improvements. Though a large part of the benefits are derived from visiting patients, a good deal is obtained from exportation. As there is no Kurtax as in Germany, it is impossible to give the exact number of visitors, but to judge from the statistics furnished by the railway company there were about 45,000 last year during the six months that the season lasts. In 1900, 14,700,000 bottles of Vichy water were exported, while only 461,000 were sent out in 1853. The financial result has been such that the shares of the company, which were sold originally at 500 francs, have been divided into four parts, each of which is worth 2000 francs.

—THE—

Therapeutic Gazette.

WHOLE SERIES, VOL. XXV. DETROIT, MICH., AUGUST 15, 1901. THIRD SERIES, VOL. XVII, NO. 8.

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Original Communications.

THE VALUE OF VERATRUM VIRIDE IN PUERPERAL ECLAMPSIA.

The following replies were received to a letter addressed by the editor to some of the most prominent obstetricians of the United States:

J. CLIFTON EDGAR, M.D.,

Professor of Obstetrics in the Cornell University Medical School.

In employing veratrum viride in the treatment of puerperal eclampsia, which I have done in many cases both in private and hospital practice during the past ten years, I have always taken into account the physiological action of the drug as set forth by our best authorities. Since the pathology of eclampsia is unknown there is at present no logical treatment; and since the etiology is obscure, our treatment must of necessity be empirical and from a clinical standpoint entirely.

I have for years adopted what I term a combined treatment, rejecting any single specific treatment as unjust, in view of our present ignorance of the etiology. My rules for treatment are:

1. Control the convulsions.

2. Empty the uterus under deep anesthesia by some method that is rapid, but that

will cause as little injury to the patient as possible.

3. Eliminate the poison or poisons which we presume cause the convulsions.

The most reliable of all means for the immediate control of the convulsions is chloroform; veratrum viride in efficiency stands second only to chloroform. With the pulse strong as well as rapid, veratrum viride offers the most certain means at our command for temporarily, and even permanently, controlling the spasms. With a weak pulse, morphine hypodermically, inhalations of chloroform, and chloral administered per rectum, together with stimulation, if necessary, may be used instead.

Veratrum viride diminishes the pulse-rate, and convulsions are almost unknown when the pulse-rate is 60 or under; it reduces the temperature; it relaxes the rigidity of the cervical rings; it causes diaphoresis and diuresis, in my observation, promptly.

Thus the control of the convulsions is accomplished as well as the third indication, namely, elimination.

As an initial dose I give 10 to 20 minims of the fluid extract, or half that quantity of Norwood's tincture subcutaneously, and repeat every twenty minutes or half-hour until the pulse continues below 60 to the minute.

While under the influence of veratrum the patient should be kept in a recumbent position. Tumultuous heart action will often supervene when the erect posture is assumed.

In my experience veratrum viride is invaluable in those cases where we have to use temporizing means until we can secure dilatation of the cervix to fulfil our second indication.

I have never been able to satisfy myself that veratrum viride has had any toxic influence upon the fetus.

RICHARD C. NORRIS, M.D.,

Physician in charge, Preston Retreat, Philadelphia.

During the past year I have directed, in hospital and consultation practice, the treatment of at least eighty cases of eclampsia, and in the majority of those cases I have employed the fluid extract of veratrum viride in conjunction with other means of treatment. My experience has made me believe in its value, has taught me the class of cases in which I think its employment is indicated, and has also taught me the dose and quantity to be employed with safety. Believing that the convulsions of puerperal eclampsia are in part the result of the irritant action of toxins upon the circulation, and having observed the rise of arterial pressure prior to a convulsion and a corresponding diminution of the severity and frequency of the convulsions with lessening of pulse frequency and tension, I have employed veratrum to produce the latter changes in the circulation with most satisfactory results.

The depressant action of other associated treatment, such as bleeding, profuse sweating, purging, chloroform, and chloral, I have not overlooked, but many cases have been observed in which all those have been energetically used, and despite them I have noted the pulse regaining force and frequency, associated with a recurrence of the nervous symptoms that mark the approach of a convulsion. The repeated judicious employment of veratrum alone has quieted the circulation, the nervous symptoms have disappeared, and convulsions apparently have been warded off. The class of cases for which I have found this drug most useful is that with a full, quick, high-tension pulse, where consciousness returns in the intervals between convulsions, and where the accumulated toxins evidently have not overwhelmed the patient. When the pulse is feeble and rapid, the patient profoundly toxic and irresponsive to the usual treatment, I have never seen any benefit from veratrum; indeed, such cases require stimulation of the circulation rather than depression.

The important indication then is rapid elimination of toxins, which is best accomplished by a veritable *lavage* of the tissues, brought about by repeated free purgation with Epsom salts and elaterium, and refilling the drained tissues with salt solution.

The cases suitable for veratrum are the cases in which bleeding is often indicated. When bleeding has been employed the circulation, thus quieted, frequently will after a time return to its former condition of rapid and high-tension pulse. Further letting of blood cannot be used with safety, but veratrum can be employed to reduce the force and frequency of the pulse.

A knowledge of the proper dose is essential. I nearly lost a patient from a hypodermic dose of twenty drops of the fluid extract, the amount frequently advised. My experience has taught me to use a smaller

dose at frequent intervals, the interval being determined solely by the effect produced by the drug. Beginning with an initial hypodermic dose of eight minims (measured by the indicator of the syringe) of the fluid extract, I have repeated the administration in five-minim doses so soon as the effect of the first dose either did not appear (*i. e.*, after fifteen minutes) or, having been noticed, so soon as it began to pass off. Watching the pulse from hour to hour the dose has been repeated sufficiently often to keep the pulse-rate between 70 and 80, and to do this I have usually administered from 30 minims to a drachm in divided doses throughout twenty-four hours. From my experience I have learned to regard veratrum in the treatment of puerperal eclampsia, second only to free purgation with salines.

BARTON COOKE HIRST, M.D.,
Professor of Obstetrics in the University of Pennsylvania.

I have employed veratrum viride in eclampsia for some twelve or thirteen years, and have great confidence in its efficacy. I have seen it reduce the pulse to 60 or below in a few minutes, and as long as the pulse was so reduced the convulsions have not reappeared. I usually give fifteen to twenty drops of the fluid extract hypodermically as the first dose, and repeat it in five-drop doses if the pulse rises in rapidity. I have once or twice seen poisoning result, but it was not serious and was easily manageable by stimulants. As you may imagine, the drug is most valuable in cases with a strong bounding pulse with suffused face and danger of cerebral apoplexy. In an asthenic kind of case with feeble pulse and pale face I would not employ it. It certainly takes the place, I think, of venesection, and is desirable in the kind of case in which bleeding would do good.

EDWARD P. DAVIS, M.D.,
Professor of Obstetrics in the Jefferson Medical College.

In reply to your letter of May 21, in my experience veratrum viride is very useful in the treatment of eclampsia. In cases with full, heavy pulse, and increased pulse tension, it lessens arterial tension, slows the pulse, diminishes the tendency to convulsions, and promotes the dilatation of the cervix uteri. This last result is quite as important as the effect produced upon the pulse. I have seen the best results by giving the tincture hypodermically in doses of ten drops, repeated every hour until the pulse falls below 90, and its tension decidedly lessened. I have seen no untoward result accompany or follow its use.

GEORGE M. BOYD, M.D.,
Professor of Obstetrics in the Medico-Chirurgical College of Philadelphia.

In answer to your letter for my opinion as to the value of veratrum viride in puerperal eclampsia, I would say that I have used the drug in my services at the Philadelphia Lying-in Charity, and the Medico-Chirurgical Maternity, and that I believe its value in eclampsia to be very doubtful. I have used it to its physiological effect (reducing the pulse-rate from 130 to 70) with no improvement in the patient's condition, but on the contrary it acted as a powerful depressant.

If used at all I believe it is indicated only in the sthenic cases. The dose used was ten minims of the fluid extract, repeated.

W. REYNOLDS WILSON, M.D.,
Obstetrician in charge of the Philadelphia Lying-in Charity.

I think your proposition to determine the exact status of this drug in this use is very important, for I agree with you that unless it has some special beneficial action, or perhaps, to put it more properly, some decided action in special cases, it ought to have no place in the therapy of eclampsia.

Personally I place no dependence upon it, as in my experience the method by which eclampsia can be best treated, outside of prophylactic measures, is by the establishment of prompt elimination. For this reason I am in the habit of administering full doses of calomel, two grains in repeated doses, until at least 20 grains are taken, for the diuretic as well as the purgative action, as soon as possible after the immediate control of the eclamptic seizure. For the latter purposes I begin to feel that full doses of morphine are to be relied upon almost equally with chloroform, as in the majority of cases I believe the condition due to the special toxemia with the resulting rather than primary nephritis.

One point in reference to veratrum viride is of great importance, and that is that th

drug possesses, if I understand the subject rightly, a powerful motor depressant effect. This being the case it would seem to me that its use might interfere with the active uterine contractions which are apt to supervene in eclampsia parturientium, and which constitute nature's means of removing the exciting cause of the convulsions.

Thank you for giving me the opportunity of expressing my views on this subject, which I consider of great importance.

J. WHITRIDGE WILLIAMS, M.D.,
Professor of Obstetrics in Johns Hopkins University.

In reply to your letter of the 27th inst., I would say that I have had absolutely no experience with the use of the veratrum viride in the treatment of puerperal eclampsia. I have never been able to convince myself of its value from the reports which I have read, and believe that other measures are more rational in the treatment of this disease.

EDWARD REYNOLDS, M.D.,
Boston, Mass.

My knowledge of veratrum viride is limited to a purely theoretical coincidence with your opinion. I have never been able to see how it could control the disease, and what I regard of more importance, I have never believed that a drug which had been known for many years and possessed such extraordinary powers as has been claimed for it could have failed of universal adoption, if the claims were true. Disbelieving in its virtues, and knowing it to be dangerous if not useful, I have never employed it.

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*THE USE OF GELATIN FOR CONTROLLING HEMORRHAGE.**

BY JOSEPH SAILER, M.D.,
Assistant Physician to the University Hospital.

In the non-operative treatment of internal hemorrhage there has always been a great dearth of remedies upon which dependence can be placed. Up to the present the drug most frequently employed has been morphine, which checks the flow of blood not so much by acting directly upon the blood or the leaking vessels as by quieting the patient. Ergot has also been extensively employed, but the opinion regarding its value is gradually swinging toward the negative side. Wright, Mayo Robson, Sympson, and others have employed chloride of calcium, and it is possible that in some cases in which the calcium salts are deficient it may be of use, but experience has not been very encouraging, although Carnot praises it highly. Two years ago I employed it in a case of hemorrhagic typhoid fever without the least beneficial result. Reverdin has suggested small doses of sodium sulphate, but I am not familiar with any other literature on the subject.

In 1896 Dastres and Floresco reported to the Society of Biology at Paris that intravenous injections of gelatin into dogs cause rapid coagulation of the blood drawn from their vessels; it does not antagonize the action of the acids that precipitate the calcium salts such as oxalic acid, but does inhibit the anticoagulant action of albumoses. Camus and Gley suggested that this action was due merely to the acidity of the gelatin, and in fact they were able to increase the rapidity of coagulation by the use of weak solutions of HCl. They admitted that the acid solutions did not antagonize the action of the albumoses, but claimed that neutralized gelatin solutions were equally useless. Floresco subsequently was able to prove that neutral gelatin, although not quite as effective as the acid gelatin, nevertheless distinctly hastened coagulation. He believes, however, that the action of gelatin resembles the action of acids, and that gelatin is normally an acid substance. It is much more efficient than the mineral acids, and may be regarded as a zymo-excitor. Laborde suggested that commercial gelatin does not enter into true solution, and that the particles in suspension act as foreign bodies and stimulate coagulation necrosis. It is difficult to understand how they are absorbed, and he doubts whether they are.

How the gelatin promotes coagulation has not as yet been determined, because at the temperature of the body it remains perfectly liquid. Bauermeister originated the brilliant hypothesis that it made the blood more viscid, interfered with the action of the leucocytes, and finally killed them, as, to use his illustration, "flies are killed in honey." The dead leucocytes then liberated the fibrin ferments and coagulation proceeded. Dobrochotow claims that gelatin, instead of hastening, delays coagulation; that it is readily absorbed, and is excreted un-

*From the service of Professor Musser.

changed by the kidneys, a fact that is mentioned by Dastres and Floresco. Its beneficial effects, he claims, are due to some hitherto undiscovered property.

Whilst this dispute was in progress experiments were made in order to determine whether the coagulant action of the gelatin would be manifested as distinctly if it were injected into subcutaneous cellular tissue. Lancereaux and Paulesco found that this was actually the case. Camus and Gley, on the other hand, injected gelatin into the peritoneal cavity of guinea-pigs, and after some time found the masses still in that cavity. They therefore concluded that immediate absorption did not occur, but Lancereaux disputed their conclusions.

In the meantime, although it had occurred to a number of practitioners that gelatin might be of therapeutic value, it appears that Carnot was the first actually to employ it as a styptic in human beings. A hemophilic subject had uncontrollable epistaxis. Five- and ten-per-cent solutions were injected into the nose, and tampons soaked in them were then placed in the nasal cavities. The bleeding stopped at once. He subsequently employed it in another case of this nature; and then, with success, to arrest hemorrhage from a deep razor cut of the hand, after operative measures had failed. Later he used it to check bleeding from hemorrhoids, from tumors, and from the female genitalia. He also experimented upon animals, opening the abdominal cavity, resecting portions of the liver, and smearing the oozing cut surface with the gelatin solutions. The bleeding stopped almost instantly. He concludes that it is of exceptional value for the reason that it coagulates the blood, nourishes the cells, is not dangerous, and is very easily prepared. Besedetnoff has repeated the animal experiments, and states that the bleeding from parenchymatous tissues stops in two minutes.

Sirdey has employed it with success in nine cases of metrorrhagia, and in two cases of epistaxis. Manicatide and Christodulo report fifty-five cases of uterine hemorrhage, all of which were cured in from one to seven days. These included various forms of metritis and endometritis, fibroids, diseases of the adnexa, abortions, and metrorrhagia. In one case of endometritis there was a relapse. In nearly all these patients other local and general measures had been tried unsuccessfully. The method was to douche the vagina with a 1-to-2000 bichloride solution, and then to apply tampons soaked in a five-per-cent sterile solution of gelatin to the cervix. One of its great advantages is that it can be used in pregnancy and other conditions in which ergot is contraindicated. Martin has employed it in one case of metrorrhagia with excellent results. Freudenthal used it in a case of obstinate epistaxis that failed to yield to many other methods, including plugging the nostrils. Besedetnoff, Gaudier, and Frey have also used it locally.

The first author to use it in internal hemorrhage—that is to say, hemorrhage from the mucous membrane of the stomach—was Poliakow, who administered it per os to a case of round gastric ulcer. Two hundred cubic centimeters of a 1-per-cent solution was given three times at short intervals. The hemorrhage was controlled; it recurred two or three times, but was easily controlled again by the gelatin. It has been employed in cases of hematemesis, intestinal hemorrhage, and melena neonatorum by Bauermeister and Gutmann with excellent results. Nogués, in a case of hemorrhage from the bladder, used intravesical injections of a five-per-cent solution with very excellent effect. All these forms of employment are still really the local action of the gelatin.

Heymann injected it subcutaneously to check hemorrhage from amputated tonsils. Curschmann has used the injections in fourteen cases of hemorrhage from typhoid ulcers, hemorrhoids, etc., with beneficial results in thirteen. He warmly recommends it. Krause has employed it in a case of hemophilia to check hemorrhagic effusion into the joints, with entire success. Kehr has used it in three cases of cholemia in which there was hemorrhage after operation, and in one case of postoperative hemorrhage in a person not cholemic. The results were brilliant. He suggested the employment of prophylactic injections before operation, and Jaboulay asserts that he performed two major operations by this method without using clamps or ligatures; both cases recovered. Karchesy, on the other hand, employed the injections very successfully during the operation, but observed secondary hemorrhage from the wound.

Davezac employed it to control obstinate hemoptysis in two cases. Arcangeli and Costinesco have used it in cases of purpura hemorrhagica, curing all. Pocheron used it in thirty cases of hemorrhagic variola, with

four times the usual number of recoveries. He observed that the cases in which the treatment was commenced earliest did the best. One hundred cubic centimeters of a two-per-cent solution was injected twice daily, and usually marked improvement could be observed after the first injection, indicated by cessation of the hemorrhagic eruption, and of the metrorrhagia. Wagner has used it in hemoptysis. Pensutti has employed it in the hemorrhagic forms of infectious diseases, in dysentery, and in chronic suppurative colitis. He injects three cubic centimeters of a thirty-per-cent solution. It is painless and very efficient. Fraenkel has treated a case of hematemesis with temporary relief, although the patient subsequently died from rupture of an artery in a bronchiectatic cavity. Klemperer, in a case of recurrent hemoptysis that had resisted all other methods of treatment, used the gelatin with success.

A certain number of unfavorable results have, however, been reported. Burghart has used it in Leyden's clinic for a long time, and he states that all injections of 1½- to 2-per-cent solutions were very painful, and that the results in hemoptysis and aneurism were entirely negative. Tövölgyi has used gelatin in animal experiments and in cases of hemophilia and aneurism, and regards it as entirely useless. Wagner does not regard it as particularly valuable in hemorrhage in typhoid fever. Fraenkel's case, already mentioned, died in spite of it, and Stadelmann, who has not used it, is very skeptical regarding its value. Karchesy believes that the effects are too transient to be of value in internal hemorrhage, and Carnot thinks that subcutaneous injections are dangerous and prefers calcium chloride. Golubinin regards the varying results as a proof of idiosyncrasies on the part of the patients.

Considering the great number of cases in which gelatin has been employed (there are about 500 on record) the results seem to be very uniformly excellent, if we omit its employment in aneurisms.

Freudweiler has published two cases—one a girl of fifteen, suffering with chronic parenchymatous nephritis, in whose urine considerable blood was always present, and who rapidly developed severe anemia. She was given injections, each containing 200 cubic centimeters of a one-per-cent solution of gelatin. There was no diminution of the blood, the albumin was increased, the patient developed methemoglobinuria, and her condition became serious. It improved after the cessation of the gelatin treatment, but from time to time there were uremic attacks. The second case, a woman of twenty-seven, had acute hemorrhagic nephritis and profound anemia. She was given 300 cubic centimeters of a two-per-cent solution of gelatin, and suffered severe pain at the site of injection. The urine became darker in color, and the albumin increased to nine per cent. He believes that the gelatin has a distinctly irritating effect upon the kidneys. Bauermeister reports a somewhat similar case. The patient had hemorrhage from the uterus and severe nephritis. The gelatin injections stopped the hemorrhage, but the patient developed uremia. His explanation differs from Freudweiler's, and is, I think, more reasonable. He believes that the gelatin increases the difficulty of the elimination of the blood by the kidneys, and that the latter organs already contain a considerable quantity of coagulated material in the form of casts that block the renal tubules, so that anything that tends to increase this would increase also the severity of the symptoms.

To my mind it is reasonable to suppose that the hemorrhage that takes place from the kidneys in nephritis is really a conservative process, and relieves the overcongested tissue, and therefore no remedy should be used that would be likely to check it. It is probable that in Bauermeister's case the hemorrhage from the uterus also served to aid in the elimination of the toxins.

Bass, who has given an excellent summary of the literature, concludes (1) that gelatin increases the coagulability of the blood; (2) that it may be employed either locally or subcutaneously; (3) that it is not dangerous, and moreover, to a certain extent nourishes the cells; (4) that it is useful in hemophilia, cholemia, etc., and might possibly be of use in brain hemorrhages; (5) that the value of prophylactic injections has not yet been established; (6) that the injections should be made at body temperature; (7) that aseptic precautions must be observed; (8) that it is apparently contraindicated in cases of heart or kidney disease. I have not met with any case of heart disease in which it has appeared to have done harm.

Recently there have occurred in the service of Dr. Musser, at the University Hospital, four cases in which it seemed desirable to employ gelatin. These are as follows:

M. D., aged twenty-eight, is a patient who has been under observation for more than

a year, suffering from valvular heart disease. The signs are those of typical aortic regurgitation complicated by fusiform dilatation of the base of the aorta. There is no tracheal tug, and no reason to suppose that this aneurismal condition has invaded the trachea. On the 18th of April, 1901, at 4 P.M., he had a sense of something giving way in the neck, and immediately afterward a pint of blood came out of the mouth, without associated vomiting or coughing. This alarmed us, and he was put to bed, and the usual remedies employed. Three more hemorrhages occurred on the 21st. The blood on each occasion was about four ounces in quantity, bright red and frothy. Two copious hemorrhages occurred the next day. This was repeated on the morning of the 24th, and at 1 P.M. on that day ten cubic centimeters of a five-per-cent solution of gelatin, that in the meantime had been prepared, was injected between the shoulder blades. On the 25th the patient expectorated about two drachms of blood, and on the 26th ten cubic centimeters of a ten-per-cent solution of gelatin was injected. This was repeated on the 30th, and on the 2d, 4th, and 6th of May. With the exception of the small hemorrhage on the 25th, no bleeding has since occurred. The patient in the meantime left the hospital on a pass, returned intoxicated, and was discharged. It seems likely that this was a case of bleeding from a ruptured vessel of the esophagus or trachea. There was the pulsation of the rauces usual in cases of aortic regurgitation, but no other local indication of the source.

The second case was one of typhoid fever, which had run a severe course, and was complicated by numerous other infections, such as otitis media, swelling of the maxillary glands, and furunculosis. On the evening of the 26th of April, 1901, at 7 P.M., the patient had a profuse hemorrhage from the bowel. He was prostrated, the temperature fell, and it was necessary to give him hypodermoclysis. At midnight of that day ten cubic centimeters of a ten-per-cent solution of gelatin was injected into the thigh, and no further hemorrhage occurred. On the 28th the stools were examined microscopically and a few red blood cells found. The hemorrhage occurred on the eleventh day of the disease.

The third case, C. M., white, fifty-three years of age, was brought to the hospital with the following history: She had had indigestion for years, but had never vomly had a severe hemorrhage from the mouth, losing about a quart of blood. There was some pain in the epigastrium, and the patient became very weak. She was admitted the next day to the hospital. The temperature was 101.2°, pulse 108, respirations 20. Blood examination showed thirty per cent hemoglobin, red blood-corpuscles 2,400,000, white blood-corpuscles 13,920. The stomach was enlarged, extending from the sixth interspace to the level of the anterior superior spine of the ilium, and from the anterior axillary line to one and a half inches to the right of the umbilicus. An attempt to pass the stomach-tube (which should not have been made) resulted in another hemorrhage from the mouth. The patient was given ten cubic centimeters of gelatin at 5 P.M., and she was ordered nutrient enemas. An attempt to irrigate the colon before one of these caused two severe hemorrhages from the colon, and therefore all effort to feed her was abandoned. The following day the patient was given an additional injection of ten cubic centimeters, and hypodermoclysis a half-hour later. She was extremely prostrated, pale, and complained of thirst. At 6 A.M. the next morning she suddenly died, and at the autopsy two ulcers, one containing an eroded vessel, were found in the stomach. The stomach and intestines were filled with blood, and it is altogether likely that death had been produced by a final hemorrhage. There was chronic nephritis and emphysema. It is likely that in this case better results might have followed administration of gelatin by the mouth, and more frequent hypodermic injections, although her condition when admitted seemed to preclude all hope.

Injections have also been employed in a case of aortic aneurism, giving ten cubic centimeters of a ten-per-cent solution every alternate day, but so far no result has been observed.

I wish to make a brief report of a fifth case in my own practice. The patient has suffered from menorrhagia to an extreme degree for several years, and as a result she has developed secondary anemia, and a condition of chronic neurasthenia. The usual forms of local and general treatment have been used entirely without benefit. On account of her discouragement it was impossible to obtain her consent to any severe measures, and she was therefore advised to eat large quantities of gelatin at the next menstrual period—at least a box of ordinary

an interval of about fifteen hours elapsed after the commencement of the last period before treatment could be instituted, but on the second day there was a very noticeable improvement, and the patient asserts that the flow has been less profuse than for years, and that it lasted only eight days instead of from ten days to two weeks as formerly.

Unsatisfactory as this case is, for the purpose of drawing conclusions it at least shows that large quantities of gelatin taken internally—three ounces per diem in this instance—have no bad effect, and possibly exert a beneficial influence upon hemorrhagic conditions. It will now be possible to employ hypodermic administration, and I expect the results to be much more satisfactory.*

The Technique of Employment.—This is very simple, and has practically not changed since Carnot's time. The gelatin is prepared as it is for ordinary media, using, however, from .5- to .8-per-cent saline solutions instead of bouillon. Thus to make a liter of ten-per-cent gelatin five grammes of common salt, a liter of distilled water, and 100 grammes of gelatin are taken. The water is then brought to about 80° C., and the gelatin slowly stirred into it until thoroughly dissolved. It is important to avoid boiling at this stage. The mixture is then removed from the stove, cooled to 40°, and the white of one egg thoroughly mixed with it; it should be stirred for several minutes. The mixture is then placed on the stove again and brought to boiling as quickly as possible, causing the coagulation of the white of the egg and partial clearing of the solution. It is then filtered through gauze to remove the coagulated albumen, and then through paper. This is somewhat tedious, but I regard it as exceedingly important, for the degree of pain experienced as a result of injection seems to be in proportion to the turbidity of the preparation. It may then be placed in flasks, or, as I prefer, in test-tubes containing each ten cubic centimeters; cotton-wool plugs are inserted, and then sterilization is accomplished by means of the ordinary steam sterilizer, fifteen minutes for three successive days. It does not appear possible to shorten this period, for sterilization in the autoclave almost invariably results in a gelatin that remains liquid.

Carnot, Lancereaux, and others have been in the habit of sterilizing only twice, with an interval of about forty-eight hours between. The tubes are then placed in the incubator and allowed to remain two days, and all in which a growth appears are discarded. This requires more time than the method that I have used. The tubes may be kept for a long time—that is to say, for several weeks—but after this period they are apt to dry. When used they can be heated to a temperature of about 38° before injection, but as during the manipulation the temperature is apt to be considerably modified, I have found it quite sufficient to have a cup of hot water and place the tubes in it. When liquefied the gelatin is poured into a small glass that has been carefully sterilized, drawn up into the syringe, and injected.

The methods that have been suggested for this injection are various. Lancereaux, who gives large quantities, recommends an apparatus something like a wash bottle with a rubber tube and needle attached to the tube that passes through the cork and reaches almost to the bottom of the flask, and a small positive air-pump attached to the tube that just reaches through the cork. When air is pumped in, it of course forces the solution through the needle into the subcutaneous tissue. Bass suggests the ordinary transfusion apparatus, but the majority of men have used a plain syringe and found it quite satisfactory. At the University Hospital this syringe contains about five cubic centimeters (a larger one would be better) and is sterilized by allowing it to remain in a five-per-cent solution of carbolic acid for about an hour. No disagreeable results have been noted.

Of the accidents to be guarded against, aside from septic infection, there are very few. It must be remembered that gelatin is an excellent culture medium, and that its local application may therefore contribute to the spread of infectious processes. Thus, Carnot in his first case noted that the tampons in the nostrils became fetid very rapidly and required change before the clot was ready to separate, and that in a case in which a tampon was placed in the vagina severe ulcers were produced because it was allowed to remain in too long. He therefore suggested that for local application an antiseptic should be mixed with the gelatin, such as carbolic acid. Of course anything that alters the nature of the gelatin, such as formalin, cannot be used.

*Since the above was written the patient has had three additional periods, each quite moderate in quantity and none exceeding six days in duration. Her general condition has improved greatly.

In regard to the strength of the solution there seems to be considerable divergence of opinion. Lancereaux, Kehr, and most other authors recommend solutions of five- or ten-per-cent for local employment, and solutions of one- to two-per-cent for subcutaneous injections. The quantity of gelatin required, according to Dastres and Floresco, is 0.8 gramme of the dry gelatin per kilo of the animal's weight, in order to produce a solution sufficiently strong to solidify the serum on cooling, and as this seems to be, according to their idea, also the strength required to produce rapid clotting, the weak solutions would require injections of enormous quantities. As a matter of fact, about 300 cubic centimeters of a one-per-cent solution is ordinarily injected. This often produces considerable pain and causes some delay in absorption. Pensutti, on the other hand, employs about three cubic centimeters of a thirty-per-cent solution, frequently repeated. As these strong solutions are rather viscid and very difficult to filter, I determined to employ a ten-per-cent solution and to inject ten cubic centimeters as often as might be required. The injection can be made through an ordinary hypodermic needle. The small tumor that is produced disappears in the course of two or three minutes, and in the majority of cases there has been no soreness lasting more than an hour. In two instances, however, patients complained of slight tenderness on the second day. There have never been any evidences of local reaction. As the gelatin is the definite agent and the saline solutions can have no influence in promoting coagulation, there is no particular reason why the weak solutions should be employed.

The usual situations for injection are, as for other purposes, between the shoulder blades, under the breast, and on the outer side of the thigh. These have proved entirely satisfactory. For administration by the mouth, 100 cubic centimeters of ten-per-cent gelatin may be employed every two hours or oftener. Hahn gave two or three hundred grammes during the day to a case of hematuria, mixing it with all the food that the patient ate—vegetables, soups, etc. In the one case in which I used it according to this method I had the patient prepare jelly a little stronger than that usually made in the kitchen, sweetened and flavored with lemon. She preferred to take it warmed in liquid form, and stated that it was not in the least disagreeable.

As a result of the analysis of the literature which I have given, and my experience with gelatin, I think the following conclusions are reasonable: (1) Gelatin increases the coagulability of the blood, whether applied locally, taken internally by the mouth, or injected subcutaneously or intravenously. (2) Applied locally it is usually harmless, and may, as Carnot suggested, aid in healing by improving the nutrition of the cells, although I regard this as doubtful. It may be injurious by promoting bacterial growth, and should probably always have some antiseptic added to it. (3) Injected subcutaneously or intravenously it is entirely harmless, and when the technique is perfect, practically painless. The solution should be thoroughly sterile; the dose employed should vary from one to three grammes of pure gelatin. (4) When administered by the mouth from 1 to 300 grammes, or perhaps more, should be employed daily. (5) It is of advantage in any form of local hemorrhage, such as epistaxis, hemorrhoids, or injuries. (6) It checks certain forms of internal hemorrhage, such as hemoptysis, hematemesis, metrorrhagia, melena neonatorum. (7) It appears to be the best remedy at our command in the treatment of hemophilia, and to be of great advantage for purpura hemorrhagica, and in hemorrhagic forms of infectious disease. (8) At present it appears to be contraindicated in only one condition, viz., acute nephritis.

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*REMARKS ON THE USE OF PILOCARPINE IN THE TREATMENT OF INFLAMMATIONS OF THE INTERIOR OF THE EYE.**

By Howard F. Hansell, M.D.,
Philadelphia.

About three years ago I reported before the Section the results of the treatment of several cases of inflammation of different structures of the eye, notably of the sclera, of the choroid, and retina, by hot baths followed by profuse sweating and rest in bed the major part of the twenty-four hours. Since then my increased experience has confirmed and strengthened my former opinion of its efficacy, and I have extended its trial to cases of acute and chronic diseases of the interior structures of the eye that have resisted the usual remedies. I believe that specialists often commit the fault of confining their attention too strictly to the affected organ, and give little regard to the influence of causes arising throughout the general system, and too little attention to treatment which may seem purely general and neglectful of the particular organs affected. As I stated in my previous report, I am unable to find any precise and logical explanation of the therapeutic action on an inflamed organ by the induction of excessive physiologic function of the skin, but believe that its value consists in the elimination from the system of noxious material, in the temporary reduction of the fluid constituents of the blood, in the unusual activity of the absorbent system, in the relief of congested internal organs by diminution in the contents of the vessels contained in the organ, in the new and better relation established between secretion and excretion—in a word, the extensive depletion and its substitution by new and selected material. By reason of absorption into the circulation and into the tissues of substances acquired through unhygienic methods of living, that by retention or ex-

*Read before the Section on Ophthalmology, College of Physicians, Philadelphia, April 16, 1901.

cess may prove harmful, the functional activity of certain organs and the inactivity of others are disturbed, and the normal physiological relations of the different parts of the body are strained, culminating eventually in loss of function and disease. By the pilocarpine treatment, carried on with discretion and judgment for a limited number of days, the relation of the organs to each other is placed upon a new and physiologic basis.

There is no doubt in my mind that the sweating process is beneficial in many forms of disease. In a partial review of the literature of the past few years I have found pilocarpine has been used to a limited extent, and extolled as highly useful and almost a specific in some general diseases. Popham *(British Medical Journal,* June 30, 1900) used it in several cases of biliary colic, and attributes the good result obtained to the "increase of secretions whereby the passages are lubricated." It is more probable that the beneficial action of pilocarpine was shown in the relaxation of the walls of the duct. Smith *(Merck's Archives,* March, 1900) has had gratifying results in chronic otitis media, and Bacon (Trans. Am. Otological Soc., 1897) in sudden deafness due to syphilis and in labyrinthitis (International Otological Congress, 1895). Sziklai *(Journal of Laryngology, Rhinology, and Otology,* July, 1894) considers pilocarpine a specific in croupous bronchitis, croupous pneumonia, and in chronic nephritis, although Rosenberger *(Deutsche Med. Wochnschr.,* Feb. 15 and 22, 1898), after trying it in nine cases of croupous pneumonia, was not satisfied that it caused the consolidation to disappear more rapidly or any of the symptoms to be distinctly improved. Anders has used it in erysipelas *(Therapeutic Gazette,* July 15, 1894), Lueck *(Therapeutic Gazette,* Nov. 15, 1894) in acute nephritis, and West *(British Medical Journal,* March 11, 1899) in chronic interstitial nephritis. In diphtheria as an adjunct to antitoxin it has been used by Sziklai *(Prog. Méd.,* Sept. 21, 1895), Barsky *(Semaine Médicale,* 1896, No. 4), and Saunders *(Virginia Medical Monthly,* March, 1896); and in urticaria by Abrahams *(Medical Record,* Sept. 15, 1894).

The objections to this form of treatment are not insuperable in most cases. It has been with me practically impossible to pursue it with advantage in private houses, notwithstanding the patient may be able to supply all that seemed needful. The discipline and system of a well conducted hospital, and particularly the quiet and rest from family and friends, are essential. The fear frequently expressed that its effect is weakening has no foundation; in fact, in my experience the result has been quite the contrary, and the patient has been stronger and better able to perform his duties after than before the treatment, independently of its effect upon the disease for which he was treated. During the sweating the sensations of the patient are not agreeable, but the feeling of relief and rest that follows more than compensates for the temporary discomfort.

It has seemed to me that the class of patients that are most benefited is the rheumatic, gouty, and uric acid diathesis. Its value in syphilitics is increased by the daily use of mercury in the form of inunctions. The amount of mercury that the system is able to stand without danger of ptyalism is greatly increased by use of the baths. I believe even in syphilitics that the bath treatment is a most valuable adjunct to the local and constitutional treatment of the usual inflammations of the eye due to syphilis.

Burnham *(Canadian Practitioner,* April, 1898, and *Archives of Ophthalmology,* July, 1895) lays great stress on the marked benefit in syphilitic diseases of the eye in which mercury and iodides, in large doses, prolonged over months have had little or no effect.

The method which I have adopted, but for which I claim no originality, is a perfectly simple one. A convenient hour is chosen, usually 3 P.M., and the patient is put into a bath the temperature of which ranges between 106° and 110°; during the bath he drinks a cup of hot tea. After twenty minutes' immersion he is put into bed and receives a hypodermic injection of 1-12 to ⅛ grain pilocarpine muriate. The sweating begins in a few minutes, and is encouraged by hot bottles and blankets for two hours or more. Should the sweating become slight or insignificant during these two hours, the patient is given a glass of ice water, when the glands of the skin take on renewed activity. At the termination of the sweating the wet blankets are removed, fresh bedclothing substituted, and the patient left quietly in bed until the next morning, when he is allowed to be up and dressed until time for the next bath. Should he complain of exhaustion following the first bath, a hypodermic injection of 1-20 grain strychnia

is given one-half hour before the next bath. The diet should consist largely of fluids. Whatever local eye treatment the disease calls for is, of course, administered as indicated, and is not interfered with by the sweats.

I will not occupy your time by detailed accounts of the patients that I have treated in the last year or two, but will simply mention the most salient features of a few.

Mr. B., aged thirty, patient of Dr. Wm. M. Sweet. Seven weeks before coming under the care of Dr. Sweet he received a severe wound of the cornea by a piece of glass, followed by an indolent ulcer, severe iritis, complete posterior synechiæ, opacity of the pupilary area of the capsule, and loss of vision excepting light perception. When admitted to the Polyclinic Hospital the site of the injury was occupied by a dense ulcerated cicatrix, the iris was inflamed and thickened, the anterior chamber one-quarter full of pus, and vision practically *nil*. In less than twenty-four hours after the first bath the pus was absorbed from the anterior chamber, the pain, which had been intense, disappeared, and the injection decidedly lessened. In less than one week the inflammation had been reduced to such an extent that an iridectomy was performed with good result. The ulcer of the cornea rapidly healed.

A woman, aged twenty-five, was admitted to the Polyclinic Hospital on account of a rapidly oncoming reduction of vision in the right eye from retinochoroiditis. She was submitted to daily baths and two-hour sweats for two weeks. Vision commenced to improve almost immediately, and was decidedly better upon leaving the hospital.

Girl, aged twelve, subject of congenital syphilis, was admitted to the Jefferson Hospital on account of blindness from interstitial keratitis of both eyes. During her five weeks' residence in the hospital she had daily sweats continued for two weeks. The opacity in the right cornea at the end of this time had sufficiently cleared to give her useful vision. This case has been under observation since that time, and under syrup of the iodide of iron, atropine, hot water, and subconjunctival injections, she has regained vision that enables her to read ordinary type.

Woman, aged fifty, with a syphilitic history of eight years' duration, was admitted to the Jefferson Hospital on account of neuroretinochoroiditis and with large and extensive vitreous opacities. Her improvement under the sweating treatment carried on for two weeks was decided, but soon after she was discharged vision again became lowered from recurrence of the opacities. She has been placed under treatment several times with invariably the result of improving the vision, but the disease takes on renewed activity after her discharge. She claims that her vision is better than it was a year ago, although the ophthalmoscopic findings are practically identical.

Man, aged thirty, was admitted to the Jefferson Hospital on account of vitreous opacities in the left eye. After two weeks of treatment the opacities largely disappeared, and vision remained good for several months. One year later he applied at the Polyclinic Hospital for recurrence of the opacities in the left eye and loss of vision in the right from the same cause. After two weeks of treatment he left the hospital with the vision of the right eye improved so that he could earn his living at laboring work and could read large type. The opacities in the left had not been favorably influenced, but remained as they were before the treatment was instituted.

A man, aged twenty-five, with practically the same history, is now undergoing the treatment in the Philadelphia Hospital for dense vitreous opacities and probably retinochoroiditis, of syphilitic origin. One year ago he was under my care in the Jefferson Hospital, and claims that he was greatly improved by the sweating treatment.

Mrs. B., aged fifty-five, was treated in the Polyclinic Hospital for double chronic scleritis of ten years' duration. She was subject to relapses and exacerbations of inflammation every few months. Both eyes were painful, deeply injected, and vision decidedly lowered. She was greatly improved by the treatment, and cured by repeated cauterization with the electric cautery applied for a few seconds to the most inflamed area of the sclera.

Mr. P., aged fifty, the subject of intense neuralgia and headache due to cerebral congestion, applied to me believing that his eyes were the cause of a recent severe attack. One week's daily sweating completely cured the headache and greatly relieved the neuralgia.

A young woman, aged twenty-two, was placed under the treatment on account of a retinochoroiditis adjoining the optic disk on the right side. The disk itself was pale, partly edematous, and the arteries and veins diminished in size. Vision upon admission

4/60. After daily sweats for nine days, followed by a course of syrup ferri iodide for three weeks, vision improved to 5/6. The inflammatory patch in the fundus had cicatrized, but the nerve remained white with the vessels smaller than usual. The left eye was healthy.

Dr. Wendell Reber has had under his charge several cases of which he has been kind enough to furnish me the notes.

Mrs. N., aged forty-four, with vitreous opacities in both eyes of four weeks' duration. Vision, right 5/7½; left 5/60. After four weeks of pilocarpine sweats daily the vision was right 5/6, left 5/20.

Mrs. W., aged thirty-six, specific hyalitis and chorioretinitis for eighteen months. Vision, 4/60; pilocarpine sweats triweekly for six weeks. Right 5/7½, left 5/6.

Mr. B., aged forty-one, confirmed drinker and smoker; right 5/40, left 5/12. Under sweat cure triweekly and strychnine daily vision improved in three weeks to right 5/12, left 5/6.

Mr. O., aged thirty-nine, also confirmed drinker and smoker; vision right and left 3/60. Well marked central color scotoma. Sweating daily for two weeks and then triweekly for two weeks, in addition to iodide and strychnine. Vision 5/9; scotoma diminished in size.

From this brief outline of a comparatively small number of cases I cannot hope to carry conviction that the pilocarpine treatment is better than that usually resorted to, but my own experience, and that of some others who have tried it, has been so favorable that I feel I can recommend it in all those chronic deep-seated inflammations of the eye that are not amenable to the usual remedies.

A NEW METHOD OF RADICAL CURE OF HYDROCELE OF THE TUNICA VAGINALIS TESTIS.

By T. Hope Lewis, M.R.C.S. Eng., L.L.A. Lond.,
Honorary Surgeon, Auckland Hospital, New Zealand.

The following method of dealing with hydrocele for its radical cure will be found to be as nearly perfect as can be. Surgeons who are accustomed to the operation of cutting away the sac down to its attachment to the testis are well aware that at the end of this act there is often a considerable amount of arterial bleeding to be controlled. By the method about to be described all this is done away with.

The scrotum having been prepared for operation according to the directions of the surgeon, a transverse incision is made over the center of the side on which the hydrocele exists. The incision on the distended skin may be three inches long. The sac must be defined and incised longitudinally. The fluid is completely evacuated and the wound flushed with sterile water or 1:5000 biniodide solution. The forefinger now explores the sac and draws the testicle and collapsed sac out of the skin incision. The sac is then slit up from top to bottom and at once turned inside out. The edges of the sac are now stitched together in their new position. It may be necessary to put in only two or three interrupted fine catgut sutures. The testicle, etc., should be then returned into the scrotum and the skin wound closed according to the usual method of skin closure employed. Dressing as usual—collodion or cyanide gauze.

It is almost a bloodless operation; one or two small skin or sac vessels may require firm pressure or ligation. Its simplicity is its great recommendation.

It will be seen by this method that the sac ceases to exist as a sac, but forms an enclosure for the cord. It cannot secrete in such a position, and speedily atrophies and causes no trouble. I am well pleased with the operation, having had excellent results, and can strongly recommend it to the practice of surgeons.

Auckland, New Zealand.

BENZINE IN SURGERY.

Franke (*Centralblatt für Chirurgie*, No. 11, 1901) has for some years employed benzine in cleaning the skin after the application of ointments; this renders the removal of the dried and often adherent masses extremely easy. The rubber adhesive plaster which sometimes adheres so firmly to the skin that when it is pulled off it causes not only a great deal of suffering but even actual excoriation and bleeding, can be removed painlessly if after raising one corner of the plaster a pledget of cotton soaked in benzine is pressed against the rubber surface. Benzine has a very feeble action upon pus bacteria. It is to be preferred to ether as a means of cleaning the skin because it is cheaper, does not produce the same cooling effect, causes no irritation even of the tenderest surfaces, and serves admirably for the removal of fat.

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Leading Articles.

THE USES AND ABUSES OF ARSENIC.

Many practitioners who do not see much of skin diseases seem to have an idea that arsenic is a remedy which can be administered in almost every lesion of the skin with advantage, and fail to recognize that as a rule it is contraindicated whenever the layers of the skin are inflamed; being, on the other hand, most useful when the epiderm is dry and improperly nourished. As a result of the constant employment of arsenic in many instances in which it ought not to be used we sometimes see cases in which distinct damage is done by its too free administration. It is also to be remembered that the drug in larger doses is capable of producing some renal irritation as well as irritation of the stomach and intestines, and that a condition of irritability of the mucous membranes of the body in general is sometimes a contraindication to its use. Our attention has been called to this important subject by a paper recently contributed to *Treatment* by Dr. Rolleston, who states, under the heading of "The Good Effects of Arsenic," that it is a valuable appetizer or pick-me-up, in the dose of a minim of Fowler's solution with ten grains of bicarbonate of sodium and infusion of gentian taken before meals; that it is also useful in certain forms of morning diarrhea and nausea; and its value in the treatment of various forms of anemia is very great indeed. So, too, the local use of an arsenical paste as an escharotic is being revived with considerable enthusiasm, a mixture of arsenic 1 part, with alcohol 50 parts and water 150 parts, being applied to the growth. It is hardly necessary to remind our readers of the practical specific influence of this drug in the treatment of chorea, and its value as a blood tonic in malaria, in diabetes, and in asthma, it being held by Murray and others that it is useful particularly in those asthmatic cases which are young, and in those which are old with marked emphysema. It is also valuable in those cases which seem to have nasal disorder due to hyperemia of the respiratory mucous membrane.

While recognizing the value of arsenic, we must not forget that it is possible for it to produce evil influences, and that it is capable when administered too long a time in large doses of causing pigmentation of the skin, irritation of the stomach and of the respiratory tract, and more serious still, peripheral neuritis, which not only ensues after the ingestion of this drug but also after its too free use in large doses in the treatment of chorea. Rolleston also tells us that large doses of this drug may also cause herpes zoster, and in the recent wide-spread epidemic of arsenical neuritis observed in and around Manchester, England, various erythematous eruptions, resembling scarlet fever or measles, with considerable itching, appeared, and these lesions were sometimes followed by pigmentation. Cases are also reported by Jonathan Hutchinson and Hamburger, in which ascites has developed in patients after the long-continued medicinal use of arsenic. In Hutchinson's case the abdomen was tapped three times, and it is possible that the ascites was really due to early cirrhosis. Reynolds and Sturrock are quoted by Rolleston as asserting that cirrhosis of the liver with ascites has been observed much more frequently during the epidemic around Manchester than before.

CHLORIDE OF CALCIUM IN THE TREATMENT OF HEMORRHAGE.

The pages of the THERAPEUTIC GAZETTE have at various times contained articles which have called attention to the employment of chloride of calcium as suggested by Wright, of Netley, England, for the control of various forms of hemorrhage which could not be controlled by pressure, torsion, or ligature; and we have also from time to time pointed out that in many of these instances it was manifestly impossible for chloride of calcium or any other drug which acts by constricting the blood-vessels or coagulating the blood to check hemorrhage, if that hemorrhage came from a vessel of any size the continuity of which had been severed. On the other hand, there is good reason to believe that in certain forms of oozing hemorrhage which are, as a rule, much more treated by the surgeon than frank open hemorrhages, chloride of calcium and gelatin are capable of producing good therapeutic results; since under these circumstances the hemorrhage may be due either to some change in the quality of the blood or marked alterations in the quality of the capillaries. Whether the chloride of calcium is of value in those forms of oozing hemorrhage which depend upon capillary degeneration is a matter of doubt, but it does seem therapeutically active when the blood lacks the property of coagulation; although it must not be forgotten, on the other hand, that the administration of full doses of chloride of calcium for a longer period than three or four days results in turn in a diminished coagulability.

Our attention has recently been called to this subject once more by an article in *La Semaine Médicale* of March 20, 1901, in which it is stated that chloride of calcium not infrequently proves itself of great value in the treatment of menorrhagia. Under these circumstances it has been prescribed in the following form:

> Chloride of calcium, 2 drachms;
> Simple syrup, 2 ounces;
> Water, 6 ounces.
>
> One tablespoonful once, twice, or thrice a day according to need.

It is stated that after this treatment has been repeated at each menstrual period for two or three months the difficulty in many cases entirely disappears; although it must be evident that where the trouble depends upon distinct disease of the uterine lining, no medicine can be really curative. If, perchance, these doses of chloride of calcium seem to irritate the stomach, or if the kidneys are irritated or diseased, M. Lafond-Grellety states that he has replaced chloride of calcium by hypodermic injections of gelatin solutions. It is not, of course, wise to continue the chloride of calcium between the epochs for the reason that we have already stated.

Closely allied to this paper is one in which Mathieu states that he has also obtained excellent results in the administration of chloride of calcium in the treatment of intestinal hemorrhage in typhoid fever. We have ourselves also employed this drug under these circumstances, and in all those instances in which it has been administered the hemorrhage has ceased, at least for a time, although the doubt has always existed as to whether this was a result of coincidence or the result of the administration of the drug. Mathieu's method does not consist, however, alone in the administration of chloride of calcium by the mouth. It also consists in the simultaneous administration of large injections of hot water into the colon; the water is hot enough to distinctly aid in contracting the blood-vessels with which it comes in contact, being as hot as it can be administered without damage to the patient. Sometimes a drachm of chloride of calcium is placed in this hot water. The injection should be given under a low pressure, the container, attached to the fountain syringe, not being any more than eighteen inches or two feet above the buttocks of the patient. Where the chloride of calcium is being given by the mouth, he gives as much as thirty grains in aqueous solution in a day. In addition to this he insists upon the necessity of absolute immobility on the part of the patient, the suspension of the so-called baths often used in the treatment of typhoid fever, and that they be replaced by spongings or moist packs. He also urges the simultaneous administration, four or five times a day, of small doses of extract of opium to a sufficient extent to cause constipation and permit coagulation to take place at the bleeding point.

WHAT MEANS CAN BE TAKEN TO HASTEN DELAYED RESOLUTION IN PNEUMONIA.

The question as to the power of drugs and other remedial agents at present in our hands in the removal of consolidation of the

lung consequent upon an acute attack of croupous or catarrhal pneumonia is a very important one. In the majority of cases of acute croupous pneumonia where recovery occurs, resolution usually speedily takes place and the patient goes on through the process designed by nature for the complete clearing of the alveoli. Where such resolution does not promptly occur, the physician must always be suspicious of the possibility of the consolidation being in reality due to an acute tuberculosis or to a tubercular infection superimposed upon a pneumonic infection. Or, again, it may be due to the rapid development of a tubercular process which, prior to the acute inflammation of the lungs, was practically dormant.

In catarrhal pneumonia the possibility of the condition being tubercular in origin is still more to be considered. Aside from the importance of recognizing the tubercular possibilities in these cases from a diagnostic standpoint, a correct diagnosis is of considerable importance from the therapeutic standpoint. On the one hand we may administer various drugs which are thought to cause resolution if the process is that of a croupous or catarrhal pneumonia, but on the other hand these drugs ought not to be employed as a rule if the consolidation of the lung is due to tubercular infection; at least, the more powerful ones should be avoided.

Our attention has been called once more to this important matter by reason of a brief editorial note in a recent issue of the *Journal of the American Medical Association,* in which the question of aiding delayed resolution occurs. It is pointed out in this editorial that sometimes when the chest is punctured with an aspirating trocar and cannula, under the supposition that a pleural effusion is present when in reality pulmonary consolidation is the cause of the physical signs, that notwithstanding the uselessness of the operation from the standpoint of getting fluid, nevertheless the puncture of the chest wall and of the lung tissue seems to set up an active process which causes the delayed resolution to speedily take place. There can be no doubt that exploratory punctures of the chest in cases where doubt exists as to the presence of pleural effusion or pulmonary consolidation not infrequently result in benefit to the patient, but it is a nice question whether the benefit is certain enough to justify us in deliberately making such a puncture if we are really uncertain that fluid is present. Personally, we do not believe that we are justified in so doing.

The next question that arises is as to whether there are any drugs which can be given under these circumstances which will aid materially in the clearing up of the lung. The administration of the so-called stimulant expectorants, such as ammonium chloride and the various volatile oils like the oil of sandalwood, is not followed, in our opinion, by any advantageous changes save in the improvement of a bronchitis which may be associated with the main pulmonary change. On the other hand, we think there can be no doubt that the iodide of sodium and the iodide of potassium are capable of producing resolution changes. But if the consolidation is due to tuberculosis, the result of the administration of these drugs is often disastrous, in that rapid breaking down of the lung tissue takes place so that the patient is hurried through the pulmonary stages of his tubercular infection more rapidly rather than slowly. It is for this reason that it is important for the physician to decide as to whether the delayed resolution is tubercular in origin, for if it is, it is best for the patient that drugs of the character that we have named should not be used. There can be no doubt that under these circumstances the best thing for the pulmonary condition of the patient is the administration of tonic drugs, a good nutritious diet, and the avoidance of direct pulmonary remedies.

THE USE OF METHYLENE BLUE AS A DIAGNOSTIC AGENT.

A number of clinicians have administered methylene blue for the purpose of determining the activity of the kidney in the elimination of this drug, thereby endeavoring to discover whether this organ was capable of carrying out its normal function of elimination; for it would seem to be proved beyond all doubt that in cases of parenchymatous and interstitial nephritis the elimination of methylene blue, after its hypodermic injection, is very distinctly delayed, even if there be no dropsy present in the tissues when it is injected. Still another diagnostic employment of the drug is that of Niclot, who has estimated the total amount of pleural effusion present by the color of the sample withdrawn after an injection of a known quantity of the dye; determining first of course the color of the dye when mixed with a

given quantity of normal salt solution. In *La Semaine Médicale* of November 28, 1900, he cited three cases in which the amount of fluid was accurately determined by this color test.

Injections of methylene blue into the chest have also been employed by Raymond and Tourlet, who used one and a half grains sent into a pleural effusion which was serous in character. By this means they were enabled to determine that absorption was going on from the pleura, and therefore that it was possible for the effusion which was present to be so absorbed, for in the instance in which they employed it the blue was found in the urine half an hour after the injection.

In certain instances where the pleura is thickened with a tubercular exudate and where manifestly no absorption can take place, the methylene blue will not appear in the urine, and this fact will indicate that absorption by natural processes cannot be expected. It seems to us that this point may be developed into one of considerable diagnostic importance, since not infrequently physicians are tempted to remove pleural effusions by purgation and sweating and the administration of diuretics, when the condition of the lining membrane of the chest is such that absorption is impossible and the patients are correspondingly weakened by remedial measures without producing any improvement in the thoracic condition. The quantity of blue which should be injected may be as much as five to fifteen grains, and according to Dr. Charles H. Lewis, of New York, whose interesting article in the *Medical News* of June 1 has called our attention to a matter in which we were already much interested, the amount of the serum injected may be two to three ounces. As Dr. Lewis well says in concluding his article, it is interesting to note in this connection that Renon has recently recorded two cases of pleural trouble in which methylene blue was introduced in the pleural cavity. In one of these the blue appeared in the urine and persisted in it over a period of nine days, and in the other three days, and that the rate of elimination corresponded with the rate of absorption of the fluid. When, therefore, methylene blue is injected into a suspected pleural cavity, and no blue appears in the urine within several hours after its injection, we may fairly conclude that absorption from the pleural cavity practically does not exist.

CHRONIC NOCTURNAL PRIAPISM.

Priapism may be defined as a prolonged and often painful erection quite independent of any sexual desire. It is distinctly pathological, and, as pointed out by Raichline, may be said to bear the same relation to a normal erection that a muscular cramp has to a natural contraction. It is, in fact, a true cramp, and is characterized as are all these affections by pain, which may often amount to veritable agony.

Priapism may be peripheral, medullary, or cerebral in its origin. The commonest peripheral cause is acute inflammation of the lower urinary tract. Thus gonorrhea, stone in the bladder, and prostatic calculus are commonly recognized sources of painful and persistent erections. Somewhat less known as a cause of priapism are inflammations of the rectum, such, for instance, as are caused by thrombotic piles, by fissures, or by seatworms.

One of the medullary sources that may be mentioned is traumatism. Inflammation of the cord, the vascular changes of the early stages of locomotor ataxia, and various organic affections of the brain are accompanied by priapism. In certain susceptible people a prolonged cerebral concentration may accomplish the same result. Manasseine notes a curious and amusing fact: on the eve of battle an entire regiment was taken with priapism so violent and painful that the surgeon in charge was able to relieve the men only by administering to each a large and active purge.

Priapism is exceptionally a symptom of such dyscrasia as leukemia or diabetes, though the latter condition is more likely to be characterized, certainly in its later stages, by complete impotence.

Raichline holds that special mention should be accorded to priapism which is symptomatic of neurasthenia, and particularly to sexual neurasthenia. Patients thus afflicted are easily excited, and their erections, particularly in the morning, under the influence of dorsal decubitus and a full bladder, are often persistent and painful. This, however, is exceptional, impotence being a much commoner symptom of such neurasthenia.

As to hysteria, it may be thought on general principles that priapism together with other neurotic cramps would be frequent. There seems to be but a single reported case. Mathieu notes that this patient suf-

fered from ten to twelve days in spite of many ingenious treatments. This was followed by a period of impotence lasting for three or four months. The patient suffered from hemianesthesia, and exhibited other signs of neurasthenia.

Raichline states that in addition to acute priapism of peripheral origin there is an affection characterized by its appearance at night; that it is chronic, persistent, painful, and sufficiently common to deserve a special study. He himself has seen three cases. He states that he has been able to find no reference to this affection excepting in the works of Peyer, who states that chronic priapism is in the vast majority of cases due to a chronic inflammation of the prostatic urethra. Peyer notes that it appears generally at night during sleep, when the inhibitory erectile center is at rest. The patients are awakened at two or three o'clock in the morning with painful erections which may subside, but recur when the patient again falls asleep. In the more severe cases the erection does not subside until cold compresses are applied, and sometimes not until after several hours of this treatment. The patient is often obliged to get out of bed before relief is obtained. In the most severe cases the erection comes on in the early hours of sleep, and is accompanied by agonizing pains which radiate in all directions. This form of priapism is often associated with impotence, especially when it is caused by masturbation.

As to the prognosis of this affection, Peyer says the case is curable only when the inflammation causing it is accessible and can be properly treated. Thus the cure of a stricture, the relief of prostatic hypertrophy, and the sedation of a posterior urethritis, may be followed by complete relief. If, however, the trouble is due to an affection of the central nervous system, the prognosis is much more unfavorable.

It will be seen, Peyer holds, that in the great majority of cases priapism is of peripheral origin, and is due to sexual excesses.

Raichline reports in detail three interesting cases. The first suffered from priapism for seven or eight years, due apparently to a too vigorous treatment of chronic gonorrhea. The second case suffered from priapism for five years. This man was neurotic and rheumatic, and his attacks began following a case of acute polyarticular rheumatism. The third patient was attacked by nocturnal priapism at the termination of an attack of neurasthenia. Tabetic degeneration of the disks was noted, and there was progressive aggravation of the attacks of priapism, together with some interference with the function of urination. The details of this case and the treatment to which the patient was subjected make interesting reading. None of the patients were erotic. They suffered pain, there was tension in the pubic region, and a sense of heat in the back. Priapism came on during sound sleep, but the third patient suffered sometimes during the day. The attacks were multiple, recurring several times during the night, were often persistent, and often difficult to overcome. They occurred every night, excepting during the development of some intercurrent malady such as renal calculi or fever. The affection was not helped by any treatment; none the less, it did not seem to seriously affect the general health of the patient, nor to imply a demonstrable lesion of either the genito-urinary or the central nervous system.

As to the cause, the first patient suffered from gonorrheal urethritis, which became localized in the prostatic urethra, and was made worse by unnecessarily severe treatment. The second patient was a neurasthenic and exhibited an unusual degree of hyperesthesia of the mucous membrane. The priapism developed during the course of an acute rheumatic attack, beginning with urticaria located in the lumbosacral region. This disappeared, but the patient for a long time suffered from hyperesthesia and paresthesia of the same region. In this case there was a suggestion of rheumatic meningitis attacking the lumbar spine. The third patient seemed to have suffered from priapism as a premonitory sign of tabes. This, indeed, is so well recognized as to be of distinct symptomatic value, and there are few of nature's ironies more forceful than the apparent sexual vigor which precedes the total collapse of those suffering from locomotor ataxia.

As to treatment, there seems to be none which is particularly efficacious; the most important seems to be prophylactic. This consists in avoiding the abuse of cold douches, of hip baths, of electricity, or all other means which excite hyperesthesia of the lumbar spine. Local treatment should in the early stages be avoided unless there are distinct indications for it. The diet should be carefully regulated, alcohol should be avoided, the bowels should be kept well

open, and the patient should sleep on his side, never warmly covered.

The therapeutic measures to be employed are electricity, and internally bromides, camphor, the hypnotics, particularly trional and sulphonal; the narcotics, such as hyoscyamine; and in the rheumatics the salicylates, such as salophen and aspirin. Counter-irritants also may be applied to the vertebral column by means of tincture of iodine, and the active cautery. Suppositories of belladonna and opium are sometimes serviceable. Where syphilis is suspected appropriate treatment is directed. The patient should be advised not to get out of his bed unless this is absolutely necessary. The erections can sometimes be subdued by violent muscular contractures maintained for some time, or by cold compresses. As a rule therapeutics are quite without avail, and the erections will persist for years. Indeed, surgical intervention may be necessary, though this is likely to cause permanent impotence.

PREVENTION OF POSTOPERATIVE ADHESIONS OF THE PERITONEUM.

One of the most formidable complications of abdominal operations is the development of intestinal obstruction incident to peritoneal adhesions. This obstruction may be immediate and may cause death, which is too often attributed to peritonitis. The obstruction may also be partial and may not develop for months after the primary operation, in which case the patient is likely to suffer from dyspepsia and from pain varying in intensity and position in accordance with the degree of the obstruction and its seat. Such pain is frequently attributed to a visceral lesion, and its true cause is not indicated until a second laparotomy demonstrates its mechanical nature.

Ward *(American Journal of Obstetrics,* June, 1901), in his valuable paper upon this subject, points out that the commonest form of adhesion is that of a loop of intestine to a raw surface, and that the obstruction rarely occurs except when the loop of intestine has become fixed in an abnormal position, the normal relation of the coils having been disturbed by operative interference. He quotes Walthard, who in the course of an experimental research performed supravaginal hysterectomy upon a number of rabbits, great care being taken that the peritoneal surfaces of the uterovesical pouch should not be touched in any manner; the parts, however, were freely exposed to the air. At the post-mortem it was found that in every case adhesions had formed between the peritoneal surfaces of the uterovesical pouch. His deductions from another series of operations were to the effect that the air contact causes these adhesions. In his investigations with reference to the effect of air contact on isolated areas, he found no adhesions of the intestines where they had been protected from such contact. Control experiments in this last series, in which the exposed parts were kept protected with hot salt solution, yielded perfectly normal conditions. He next found that peristalsis tended not only to prevent adhesions, but in some cases even to tear out the retaining sutures where a coil of intestine had been exposed to air contact of twenty minutes before being folded so as to bring the serous surfaces together. He studied the effects of filtered air upon the peritoneum, and the post-mortems always showed the formation of adhesions. The peritoneum was then exposed to steam at 30° C., and in all cases adhesions were absent; hence the conclusion was reached that by the prevention of dryness adhesions can be avoided. The results as to the chemical action of the component parts of the air on the peritoneum were all negative as to the formation of adhesions, provided there was the presence of moisture. Dry air at 38° C. showed the formation of adhesions and macroscopical changes of the peritoneum.

Walthard believes that after long contact with air the resisting powers of the peritoneum are so diminished that the number of microorganisms necessary to bring about a fatal peritonitis is greatly reduced.

The practical application of Walthard's results appears to Ward to be the abandonment of dry asepsis and dry toilet of the abdominal cavity, and that moist asepsis, and as far as possible protection of the peritoneum from air contact, should be practiced.

It may be said that the formation of peritoneal adhesions after operation is directly proportionate to the amount of sepsis, traumatism, dry-air contact, loss of heat, and raw surface there is present.

The less the vitality of the various tissues is lowered by prolonged exposure, lowered temperature, and traumatism, the less infec-

tion there will be, so that the home-guard army of leucocytes may be kept active and vigorous to repel the bacterial army of invasion threatening the organism.

Much handling of the bowel predisposes to subsequent paralysis or pseudoileus; and in view of the action of peristalsis on the prevention of adhesions a very slight impediment, as a recently formed adhesion, will result in a serious and perhaps fatal obstruction if the adjacent bowel remains paralyzed for a few hours.

In the after-treatment of laparotomized patients for the prevention of adhesions, the employment of early catharsis to provoke active peristalsis, provided it be employed early, is of value. Sometimes it is not wise to employ this procedure, and in such cases an early resort may be made to the use of the copious high enemata in conjunction with the cathartic. To be employed early also, in the Trendelenburg posture, oxygen to inflate the intestines may be tried. Free motion of the patient after a laparotomy is undoubtedly a preventive of adhesions. The patient should be encouraged to frequently change her position in bed during the early hours after an operation, as then the newly forming adhesions are broken up and the intestines will be more likely to assume their proper relations.

To summarize: Prevention is aided by surgical cleanliness; by the avoidance of raw surfaces and pedicle stumps by covering them with peritoneum or grafts of omentum, and the abandonment of the ligature *en masse*; by protecting from dry-air contact; by rapid operation; by keeping up the heat of the peritoneal cavity by frequent renewal of the hot salt solution (115° F.) and by protection of the exposed parts; by avoidance of excessive manipulations of the intestines by technical skill, proper anteoperative preparation of the bowels, and posture, to prevent pseudoileus; by replacement of the loops of intestine and omentum by filling the abdominal cavity with hot salt solution before closing, and thus floating them; by the encouragement of motion by the patient after the operation; and by the early use of the high enema during the first twelve hours in conjunction with cathartics, and, on failure, the prompt use of oxygen in the Trendelenburg posture.

Reports on Therapeutic Progress

WHAT DRUG STANDARDIZATION MEANS FOR THE PHYSICIAN.

The *Journal of the American Medical Association* of April 13, 1901, contains an article by DOHME on this theme. As a manufacturing druggist Dohme would not have us think that this subject is incomplete and unworthy of the attention and confidence of the medical profession until all drugs shall be perfectly known and standardized. The principle he is arguing for is as good, sound, and correct if only one drug is standardized as if all were standardized. Naturally, we cannot standardize them all at once, or in five or perhaps ten years, but we can hope that we have the encouragement and cooperation of the medical profession in endeavoring to standardize them as rapidly as lies in his power. Especially does he wish it clearly stated that, as nothing can be lost to the physician, and immeasurably much gained by the adoption of drug standardization, the members of the medical profession should lend the cause of scientific pharmacy and medicine the great impetus of their favor and encouragement by making it apparent that they favor drug standardization, and are convinced of its advantages to them and to medicine. The convention of pharmacists and physicians that recently met at Washington to appoint a committee and give the latter instructions as to the revision of the Pharmacopœia was quite decided in its favor of the more general standardization of the vegetable drugs of the Pharmacopœia.

It appeared to be the unanimous sentiment of the 188 or more delegates from institutions of pharmacy and medicine there assembled that as many as possible of these vegetable drugs should be standardized, and the committee there elected will no doubt regard the subject of drug standardization as its most important duty. The view of the American Medical Association, as expressed by one of its representatives, that physicians would like to have the Pharmacopœia contain a liquid and a solid preparation of each vegetable drug in it, and have these respectively in each case represent a like amount of the drug, was not favorably considered by the convention. The idea was to have all the fluid preparations represent, say, 100 cubic

centimeters 100 grammes—*i. e.*, a fluid extract—and then have no tinctures or more dilute preparations of the same drug. Similarly, for solid preparations, have all solid extracts represent a uniform amount of the drug, say 100 grammes represent 500 grammes of the drug, and then have no stronger or weaker solid extracts of the same drug. The objection raised was that it was impracticable, as many drugs cannot be made into liquid or solid preparations of the same strength as other drugs can be. This, however, has no bearing on drug standardization, as the latter depends on quantity of active principle, and the former depends on quantity of drug, which necessarily brings with it variation of quantity of active principle.

To sum up, drug standardization means that drugs shall always be uniform in therapeutic strength, and the great advantage of this uniformity to the physician is that he can always depend on obtaining definite and uniform therapeutic effects whenever he prescribes a standardized drug. It removes the element of doubt from the physician's mind, and places him on a sure footing in relation to his patients, while at the same time avoiding for the pharmacist any question as to the reliability of his drugs, and assuring the patient that he is always getting what the physician desired that he should get. Any achievement that thus makes for the advancement and improvement of all the parties in the highly important operation of administering to the ills of humanity must needs be a good achievement, and deserving of the approbation and encouragement of all concerned.

THE USE OF THE SUPRARENAL CAPSULE IN DISEASES OF THE HEART.

In the *New York Medical Journal* of May 18, 1901, FLOERSHEIM reaches the conclusion that, after the administration of the suprarenal powder:

1. A weak and irregular acting heart became stronger and more regular.

2. A dilated heart was contracted.

3. A diffused apex beat became more localized.

4. A diffused, loud, and rough mitral regurgitant murmur became localized, smoother, and lessened in intensity, while in some cases the murmur disappeared.

5. A murmur which, owing to the extreme weakness of the heart, could scarcely be heard, became more distinct, thus aiding in the diagnosis.

6. The normal cardiac sounds, when indistinct, became clearer and more easily distinguished.

7. In some cases a rapid pulse became less rapid; in other cases a slow pulse became faster.

8. Patients who were very weak, with organic heart disease, were improved.

9. No effect was observed in organic heart disease when the pulse was strong and regular.

ADRENALIN, THE ACTIVE PRINCIPLE OF ADRENAL EXTRACT, A PROPOSED AGENT IN MORPHINE AND OPIUM POISONING, IN CIRCULATORY FAILURE, IN THE PREVENTION OF COLLAPSE IN ANESTHESIA, AND IN ALLIED CONDITIONS.

Professor REICHERT contributes to the *University of Pennsylvania Medical Bulletin* for April, 1901, the results of his experiments, which show that adrenalin, when intravenously injected in the dose of 0.0005 gramme, causes, as its most important effects, a marked increase in the respiration-rate; a more or less marked decrease in the pulse-rate, which is usually preceded by a transient increase and followed by a marked increase; a more or less decided increase of arterial pressure, but which is usually transient, rarely lasting for more than a few minutes, although the rise can be maintained by repeated injections; and an increase of general metabolism and body temperature. The pulse and arterial pressure are the first to be affected, then the respiratory movements, and then general metabolism and body temperature.

The effects caused by intravenous and subcutaneous injections differ in certain respects, although these variations are doubtless merely expressions of dosage; in other words, upon the quantity of adrenalin introduced into the circulation during a given time interval. After subcutaneous injections sufficient in size to affect the pulse, the pulse-rate is always and persistently increased, and the rise is accompanied by increased force; whereas, when intravenously injected the increase in the rate is interrupted by a decrease, which is often very marked, although of short duration. A dose of 0.001 gramme per kilo subcutaneously injected into a dog weighing ten

kilos may not affect arterial pressure, yet 0.000025 gramme per kilo, or one-fortieth of this quantity intravenously injected, is sufficient to cause a temporary increase. The respiratory movements after an intravenous injection are rendered less frequent and shallow for a few moments, but this effect has not been observed after subcutaneous doses.

The increase in the respiration-rate is caused by a stimulation of the respiratory center, since it occurs after section of the vagi.

The increase of the rate and force of the heart-beats is due to a direct action upon the heart, as both occur after isolation of the heart. The marked decrease in the rate with the accompanying full pulse which is observed after intravenous injections is owing to a transient stimulation of the cardio-inhibitory apparatus, and is prevented by section of the cardio-inhibitory fibers of the vagi.

The rise of arterial pressure, which is so very decided after intravenous injections, is dependent in part upon a direct stimulation of the heart, and in part upon vasomotor stimulation, both centric and peripheral. While a dose of 0.00025 gramme is sufficient to cause a marked increase of pressure, subsequent doses cause either a further rise or serve to maintain the increase, or both, and thirty or more times this quantity can be injected directly into the vessels within a few minutes without other than stimulant effects.

The actions upon general metabolism and body temperature are not, as a rule, very noticeable after doses of less than 0.001 gramme per kilo, but in morphinized dogs one-fourth of this quantity is apparently as powerful as the full amount in a normal dog.

The positive and prompt actions of adrenalin upon the respiratory movements, heart, arterial pressure, general metabolism, and body temperature justify the belief that this substance will be found of value in opium and morphine poisoning, in failure of the circulation, in the prevention of collapse in anesthesia, and in allied conditions. It is probable, owing to its powerful local action as a vasoconstrictor, that abscesses will be caused by subcutaneous injections.

If given by the stomach in morphinized individuals it should be administered with alcohol in some form so as to increase the rapidity of absorption.

THE THERAPEUTIC USE OF THE X-RAYS ON THE SKIN.

In the *Boston Medical and Surgical Journal* of April 11, 1901, TOWLE says, as a result of his experience, that we may conclude: (1) That the real nature of the *x*-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; (2) that the treatment is not without danger, unless the greatest care is used; (3) that the effects of the *x*-rays remain for a long time, and recovery is very slow; (4) that whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the *x*-rays; (5) that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; (6) that the *x*-rays are not proved to have any bactericidal power; (7) that their therapeutic effect is probably due to the inflammation excited; (8) that hair can be removed by their use, and that lupus and several other diseases can be healed over; (9) that in a few reported cases we may fairly assume that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; (10) that the effect of exposure to the *x*-rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; (11) that while the permanency of the cure effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

GELATIN INJECTIONS FOR ANEURISM.

Aneurisms of the great vessels of the body are such unsatisfactory things to treat, both medically and surgically, that anything which promises an advance in this connection should have a fair hearing. During the past two or three years a number of attempts have been made to cope with certain aneurisms beyond the reach of radical surgical intervention, by means of the subcutaneous injection of solutions of gelatin, administered with the view of increasing the coagulability of the blood. There have been numbers of cases reported by different observers, most of whom are on the continent of Europe. The technique

of the injection has usually been the same among all operators, and consists in the subcutaneous injection of a sterile solution of gelatin, to the amount of about 250 cubic centimeters, at intervals of two or more days. The strength of the solution has usually been one or two per cent, and no serious local disturbances have been reported.

Geraldini, an Italian observer, reports (*Gazz. degli Osped.*, February, 1901) four aortic aneurisms, in the treatment of which he made use of this method, with great apparent benefit, though the details are not given with quite as much completeness as is desirable. In one patient who had an aneurism involving the innominate artery, the benefit was apparently very great. Forty-five injections were given in all, and the tumor ceased to pulsate, and diminished in prominence. Another patient with an aortic aneurism received sixty injections, and much benefit was claimed. In this case albuminuria developed during the course of the treatment, so that the injections were discontinued for a number of days. In the other two cases in this series marked improvement was also noted. A number of other writers have reported more or less similar favorable experiences, and several cases have been reported in which no benefit was seen, but the four cases mentioned above are of enough importance to gain attention for the method, and to make it advisable to pursue the matter under proper circumstances.

The gelatin is said to act, as would naturally be supposed, by increasing the coagulability of the blood, though it seems to us that the limit of safety in this increase must very soon be reached as the cause of the increase is mechanical—that is, solution of the gelatin in the plasma. It does not appear that the plasma could exercise its physiological functions with more than a very small percentage of gelatin in solution in it. We must not, furthermore, be too ready to decide favorably in the case of this method, until we are able to judge in how great a degree other recognized means of treatment have been employed, from which many favorable results have heretofore been reported. Potassium iodide, rest, and restricted diet have often given at least temporary satisfaction in cases of aneurism of the great vessels, and a large share of a good result might really be due to such means, when the disposition would be to credit the novel method with the good done, without making due allowance for the adjuvants.

Several instances of the employment of the method in this country have been reported, in which there has been no perceptible improvement, and apparently the physiological limit of its applicability and safety would seem to be very considerably on this side of the point at which mechanical suspension of gelatin in the blood plasma would be sufficient to exercise its power of increasing coagulability to a sufficient extent.

However, more clinical evidence is what is needed, and as with proper precautions there seems to be no danger in the employment of this method, there is no objection to asking for further trials. Evidence is not likely to accumulate very fast, since aneurism is not a very common disease here; but the burden of the proof lies with the new method.—*Medical Record*, March 30, 1901.

THE ACTION OF ORCHITIC EXTRACTS.

WALTER E. DIXON has made a number of experiments on the composition and action of orchitic extracts and recorded them in the *Journal of Physiology*, vol. xxvi, Nos. 3 and 4, February 28, 1901. The following is a summary of his conclusions:

From the experimental evidence brought forward it is shown that orchitic extract, prepared by macerating the fresh gland with physiological saline, contains three groups of bodies: (1) proteids; (2) organic substances unaltered by boiling; (3) inorganic salts. Of the proteids, nucleoproteid is the most plentiful and the only one which produces any marked action. It produces, as observed in solution in normal orchitic extract, a fall in blood-pressure after a somewhat lengthy latent period; this effect is mainly the result of cardiac inhibition, and is most highly developed in the cat. Inhibition lasts a time varying with the amount injected, and recovery is gradual. Small injections produce a quickening of respiration, but quantities sufficient to obtain well marked cardiac inhibition cause a temporary absence of all respiratory movements. Respiration begins again gradually, and ultimately assumes a condition both quicker and deeper than that

which was present before injection. This effect is associated with some dilatation of the splanchnic area, spleen, and testis, but the kidney always shows a very considerable and prolonged constriction. In cats the injection of normal orchitic extract produces, about the time of cardiac inhibition, an initial splanchnic constriction, but this condition, which is not observed in dogs, rapidly gives place to the typical dilatation; in the goat this initial constriction produces a rise in blood-pressure because the associated cardiac effect is absent in this animal. Both the cardiac and the respiratory effects are absent if the vagi have been previously severed, and the effect therefore would seem to be central in origin. If injections are made directly up into the brain through the peripheral end of the carotid artery, the latent period, from the moment of injection up to the time of cardiac inhibition, is prolonged. These effects (cardiac inhibition and cessation of respiration) are therefore probably reflex, originating in the periphery, the impulses in the case of the heart passing to the brain and down the vagi. Splanchnic dilatation still occurs after section of the vagi or injection of atropine.

The author refers to opposition of the renal vessels, and occasionally the testicular as opposed to the intestinal. For example, in the dog, orchitic injections produce intestinal dilatation of vessels accompanied by renal and testicular constriction. It is difficult, he says, to conceive how such an effect can be peripheral, and in a number of perfusion experiments which he performed with orchitic extract, he obtained identical results whether perfusing the dog's kidney or rabbit's hind limbs. The suggestion of Brodie *(Journal of Physiology*, xxvi, 1901) that this condition is brought about by an excitation of the vasomotor center seems the most probable. The precipitated and redissolved nucleoproteid has a slightly different action from the native substance in orchitic extract. The latent period is prolonged, and the cardiac inhibition, when once obtained, continues for a very long period. Injections of nucleoproteid produce protrusion of the eyeballs and slight dilatation of the pupils, but death never results from intravascular coagulation of the blood. Injections of testicular substance give rise to a prolonged hypoleucocytosis followed by hyperleucocytosis. The hypoleucocytosis is largely the result of altered distribution of the leucocytes, and mainly affects the polynuclear corpuscles. This effect is principally due to the nucleoproteid.

The effect of the second group of bodies may be observed after either section of the vagi, the administration of the filtrate from the boiled extract, or the administration of the gland by the stomach. By any of these methods the nucleoproteid effect on the heart and respiration is eliminated. The action of this group of substances corresponds closely to the action of a number of leucomaines, of which choline may be taken as an example; some small differences have, however, been pointed out. The effect (immediate, though slight, fall in blood-pressure, followed by quick recovery) differs from choline in that whilst with the former substances splanchnic dilatation is not immediate, and is not manifest frequently until the maximum fall of pressure is reached, with choline the dilatation is synchronous with the fall. In the former the effect is mainly cardiac, in the latter mainly vasomotor. Spermin is responsible partially, but probably only in a small degree, for this effect, because an alcoholic extract of testis—in which spermin is insoluble—produces the same effect. Orchitic injections produce similar effects on animals which have been castrated some months previously, and on the normal animal. Inorganic salts are present to 7.5 per cent of the dried ram's testis, and chlorides, sulphates, and phosphates of sodium, potassium, or calcium can be detected in the ash. The vasodilator substances which are not destroyed by boiling are more powerful in the epididymis and vesiculæ seminales than in the testis, and hence are probably derived from the metabolism of the glandular epithelium of the testis.—*British Medical Journal,* March 23, 1901.

THE ACTION OF MORPHINE ON THE STOMACH.

A. Hirsch *(Centralbl. für Inn. Med.*, Jan. 12, 1901) draws the following conclusions from experiments on dogs in which a cannula had been permanently fixed in the duodenum: (1) In doses of 0.01 gramme (about ¼ grain) or more per kilo of body weight, morphine when injected hypodermically causes the gastric contents to be retained for hours; (2) this inhibition

of expulsion is due to persistent spasm of the pylorus; (3) as long as the pyloric spasm lasts there are powerful peristaltic movements of the pyloric portion if the stomach is full, or weaker movements if the stomach is empty; in either case the cardiac end of the stomach remains at rest; (4) the secretion of HCl is at first diminished, but later is abnormally large; (5) the pyloric spasm and the peristalsis of the pars pylorica are due to a stimulation of the centers for the contraction of the pyloric sphincter and pars pylorica situated in the corpora quadrigemina; (6) the initial inhibition of secretion of HCl is probably produced locally by the excretion of morphine through the gastric glands; the later hypersecretion is probably of central origin.

The clinical observations of Riegel and others show that the effects of ordinary doses of morphine in man are: (1) Delayed expulsion of the gastric contents; (2) initial diminution and later increase of the secretion of HCl, both of which are proportional to the dose; (3) a dose given hypodermically produces much more marked disturbances than an equal dose given by the mouth.

Since these observations agree in the main with the results of the writer's experiments, it is probable that morphine produces in man, as in animals, a more or less lasting pyloric spasm.—*British Medical Journal,* March 23, 1901.

RECENT ADVANCES IN DERMATOLOGY WHICH ARE OF SERVICE TO THE GENERAL PRACTITIONER.

BULKLEY writes to the *Journal of the American Medical Association* of March 30, 1901, on this theme. He says that treatment of syphilis has been the subject of much consideration of late years, and really very diverse views may be found given by reliable observers; but mercury is still the acknowledged remedy, with iodine as an adjuvant. The question is repeatedly discussed as to the date of beginning mercurial treatment, and the duration and regularity of medication, and while some argue for only symptomatic treatment, on the recurrence of specific lesions, the weight of judgment seems still to be in favor of early measures as soon as the diagnosis is definitely established, and prolonged treatment, even to three to five years, with occasional breaks.

The hypodermic injection of various preparations of mercury has had very strong advocates during the past few years, and thousands of injections in hundreds of patients are reported with favorable results, and this both in the early and late stages of the disease. Its advantages are that (1) it is an active remedy which can be regulated perfectly; (2) it avoids disturbing the digestive tract; (3) it avoids publicity in using remedies; (4) it is sometimes surprisingly curative when other measures have seemed ineffective. Its disadvantages are mainly the pain and occasional inflammation and abscess. Each of the different preparations of mercury for hypodermic medication has its advocates, and the bichloride, calomel, "gray oil," and salicylate of mercury are about equally supported by testimony.

A somewhat new method of applying mercury through the skin has been introduced by Welander, and is worth mentioning. Acting on the idea that a certain amount of the good effect in mercurial inunction arises from the inhalation of vaporized mercury, he has devised a method by which it is worn next the skin on the chest. This is in the form of a bag fifteen by twenty inches in size, which is worn like a chest protector. On the inner side about a drachm of mercurial ointment is applied every day. A fresh bag is used every week or so, and the patient may bathe daily. It is said that absorption of mercury takes place very quickly in this way with great benefit to syphilitic lesions, which might indeed be expected, as it corresponds closely to the method of treating infantile syphilis with mercury on the inner surface of the abdominal band.

TREATMENT OF CHRONIC NON-EXUDATIVE NEPHRITIS.

In discussing this subject in the *Cleveland Medical Gazette* for April, 1901, McGEE reminds us that the condition of the circulatory system is perhaps as important as that of the kidney, as the vascular changes incident to the disease form a factor requiring attention, while relief to the symptoms dependent upon them contributes greatly to the patient's comfort, and as long as a good circulation is maintained, the risk of uremia is greatly lessened. In the earlier stages a rapid pulse of high tension is an index of commencing cardiac

change, and with an excess of hypertrophy a cardiac sedative is needed, and at this time veratrum viride, with its well known power of lowering tension as well as quieting cardiac action, will often be of value. As there is a definite relation existing between the high tension and many of the conditions present, its lowering is a prime indication for the relief of the series of symptoms sequential to this vascular change, and nitroglycerin, with its prompt power as a vasodilator, is probably the general favorite of the profession for this purpose; an increase of pressure within a weakened vessel means possible rupture, and no other agent is so valuable in these cases as well as when the renal lesion is the local expression of a general endarteritis. It is stated that a tolerance is established for the drug in this disease, and its dose should be gradually increased, but it is generally well borne, and some patients will take with benefit relatively large doses. As it is a drug which is eliminated rapidly, it should be given at short intervals to maintain its effect, and it should be dropped for a few days every few weeks, resumed in a small dose, and this increased until the effect desired is obtained. The iodides, too, exert a favorable action and probably lessen tension, and may be used when we desire to discontinue the nitroglycerin for a time. While compensation is complete, no active cardiac treatment is indicated, but in the later stages of the disease the heart muscle is apt to become weakened by the action of the toxins in the blood, the anemia, and the extra work imposed upon it in overcoming the increased resistance due to arterial change. Under the strain it may be unequal to its task, and when evidence of deficient compensation occurs digitalis and its allies are indispensable.

Although digitalis is of especial value when tension is low, and generally contraindicated when it is high, yet union with nitroglycerin will counteract its tendency to contract the vessels, aid its heart action by lessening resistance, and increase diuresis. The objection has been advanced that the effect of nitroglycerin is largely lost before that of digitalis is expended, but practically the combination is an efficient one. Sparteine and strophanthus are of value, and neither appreclably increase tension, while caffeine, theobromine and strychnine may at times be useful as supplements or substitutes. The symptoms which at times demand active aid are anemia, uremia, and dropsy. Although anemia is neither so decided nor so frequent as in the exudative form of the disease, yet when existing here, as elsewhere, iron is essential, and there is some difference of opinion as to which preparation to employ. It is now generally asserted that the organic forms of iron are alone absorbed, and while they frequently act well, yet we know that clinically certain cases improve under inorganic treatment, and in this form of anemia the author has found the tincture of the chloride, although rather disagreeable to take, still one of the best of chalybeates; given in small doses, and combined with about 1-100 grain of the bichloride of mercury three times a day, it rarely fails to be of aid; it improves the weak heart's nutritive supply, and the mercurial doubtless enhances its beneficial influence. It should be remembered, however, that whatever form of iron is chosen is simply of value for the anemia, and if given when this is absent it may do harm. Iron is so generally recommended in chronic nephritis that the inference might be drawn that it benefits the existing inflammation, while we know it controls only the anemic condition and does not influence the renal changes.

One of the great dangers is uremia, and coma, rather than convulsions, is its more common form of expression. General means may avert it to a great extent, and in mild cases free purgation, and water taken freely, may relieve it, insuring the excretion of the toxins presumably present; in fact, elimination in some form is the essential treatment. In severe cases prompt purgation, and, if the heart be strong, pilocarpine hypodermically, are usually efficient. The present trend of professional testimony, however, is largely in favor of the saline solution, used intravenously, perhaps with previous venesection if the case be urgent, or if more time be allowable hypodermoclysis, if the tissues are not so edematous as to interfere with absorption, when enteroclysis may be employed. Its method of action is, of course, evident, depending on dilution of toxins in the blood and rapid renal elimination, and, as no other agent promises better results, it appears at present to be the remedy of choice.

Dropsy occurs in the later stages and requires purgation and diuretics, with support to the weakened cardiac muscle until, if possible, compensation is restored. Ascites, which is sometimes met, is generally due to coincident hepatic cirrhosis, and calomel especially is a most efficient aid. Like digitalis, its diuretic action seems largely to cease when dropsy disappears, but it is still valuable by increasing secretion and its effect on the circulatory system. The author uses calomel during the general dropsical condition, and later the bichloride, either alone or as an adjunct to the iron when this is indicated. As to the manner in which calomel produces diuresis, it has generally been ascribed to its direct action on the renal tubules, but another plausible theory appears to be that it increases the excretion of urea, and urea we know is one of the best diuretics. The apocynum cannabinum, or black Indian hemp, is an agent which has frequently yielded satisfaction, and the time-honored and very efficient combination of digitalis, calomel, and squill has strong advocates even to-day.

A possible risk in the use of opium or its derivatives in these cases certainly exists, and although high authority occasionally recommends it, the author believes that the older position of regarding its use as dangerous is the safer one, and he gives it tentatively and in small doses, if at all. We occasionally find these cases complicated with diarrhea, and it is a question whether it should be suddenly checked; it is often an effort at elimination, and its rapid cessation by opium or astringents might impose on the impaired kidneys an added strain, and if unequal to the demand, serious results might follow.

SOME POINTS OF PRACTICAL IMPORTANCE IN THE SYMPTOMS AND TREATMENT OF ACUTE PNEUMONIA.

In the issue of *Medicine* for June, 1901, BABCOCK writes on this subject. The practical point the author makes in the treatment of acute pneumonia grows out of the effect of infection on the nerve centers. We have long been wont to administer nitroglycerin so soon as cyanosis appears. Elsner in an admirable paper *(Therapeutic Gazette,* 1899) before the American Climatological Association two years ago reported his success in these cases with the frequent administration of diffusible stimulants. He advocated the use of fifteen drops each, every twenty minutes, of aromatic spirit of ammonia, compound spirit of ether, compound spirit of lavender, and tincture of valerian, keeping them up day and night so long as danger exists. Although in the discussion of Elsner's paper Dr. Babcock maintains that nitroglycerin does sometimes act as a heart stimulant if not given in too large doses, still he has come to the opinion that as this agent is in itself a vasodilator and is likely to intensify the capillary paresis, it is better to rely upon diffusible stimulants. It should be remembered that their action is very evanescent, and therefore they should be administered from two to three times an hour. Their purpose is to stimulate the failing heart and enable it to overcome the influence of capillary stasis. Alcoholic preparations, as champagne and high wines, are also useful in small, frequently repeated amounts. The author believes that when digitalis does good in these cases it is because in addition to reenforcing cardiac systole it contracts the arterioles and antagonizes the stagnation in the capillaries.

Aside from pure heart stimulants in these cases the author believes that nothing is so efficient as full hypodermic doses of strychnine as a cardiac tonic, one-thirtieth or even one-twentieth every two hours, and in very urgent cases even hourly. Caffeine, by preference the valerianate of caffeine, in grain doses, is also thrown under the skin every two hours or oftener. This remedy not only acts as a cardiac tonic in conjunction with the strychnine, but also exerts a vasoconstrictor effect. Surprising results following this treatment have been noted, the pulse increasing appreciably in strength and the pulmonic second sound becoming louder. This mode of treatment is symptomatic.

We should make attempts to eliminate the toxins, since as yet we possess no certain means of antagonizing them, the favorable reports from antipneumococcus serum to the contrary notwithstanding. It is therefore recommended that the administration be given both by rectum and under the skin of a physiological salt solution. A special apparatus is not necessary, since an excellent gravity apparatus can be constructed out of an aspirating needle and an ordinary fountain syringe. From one to two pints may be allowed to flow slowly into the subcutaneous cellular tissue, and a convenient site for administration is the loose skin of the axilla o

the lateral lumbar region. In those cases in which this treatment does good, the pulse grows fuller, stronger, and somewhat slower, while in the course of an hour there is an increase in the volume of the urine. This treatment may be repeated as often as required. It is believed that the frequent employment of this subcutaneous infusion of salt solution has saved life in these cases. The author has only employed it, so far, when the condition has been so grave that all means of treatment have proved unavailing. Nevertheless, he advocates its trial in all cases of severe pneumococcus infection.

The last method of treatment mentioned is venesection. Although bloodletting is particularly useful in the beginning of sthenic pneumonia in vigorous adults, still it is undoubtedly of service at times in these cases of cyanosis. From sixteen to twenty ounces of blood should be taken from the arm, or the blood should be allowed to flow so long as it remains thick and dark. When the blood becomes red, sufficient has been drawn, even though it does not reach the amount stated. This procedure will sometimes promote the action of the salt infusion. Even when it does not help it will do no harm, and is not objectionable. At all events, such is the gravity of these cases that we should resort to any and all means of treatment that may offer the patient a chance of recovery.

Finally, the inhalation of oxygen is also to be recommended, although it has been thought that its special indication is the mechanical interference with hematosis by extensive bronchitis and such an extent of pneumonic consolidation that life is endangered through the want of sufficient respiratory capacity. When employed the gas should be given freely, and, if need be, continuously.

THE ANTAGONISM BETWEEN ATROPINE AND MORPHINE.

ERNEST BASHFORD *(Arch. Internat. de Pharmacodyn. et de Thérap.*, vol. viii, Fasc. 3 and 4, 1901) has investigated the action of atropine on white rats poisoned with morphine, the salts employed being morphine tartrate and atropine sulphate. The minimum fatal doses of morphine and atropine respectively per 100 grammes of body weight were first determined. If 45 milligrammes of morphine—the minimum fatal dose—were injected hypodermically, death could be averted by the injection of atropine, providing that the dose of the latter lay between 1/40 and 7.5 milligrammes (3/8000 to 1/10 grain). This amount of atropine is from 1/12,000 to 1/36 of the smallest fatal dose of atropine sulphate. Any larger dose, and sometimes even 1/36 of the minimum fatal dose, was not only useless, or at most postponed the fatal issue, but often hastened death by the addition of the injurious effects of atropine to those of morphine. Thus, half the usual minimum fatal dose of morphine is fatal when combined with one-third of the minimum fatal dose of atropine. A similar behavior was observed by Fraser in the case of physostigmine and atropine, which are also antagonistic between certain limits, and the fact has been very generally wrongly interpreted as a proof that no antagonism between them is possible. The injection of atropine sulphate invariably failed to save the animal, if the dose of morphine tartrate exceeded two and a quarter times the minimum fatal dose. As the dose of morphine is increased, the effective dose of atropine is further limited in such a way that though the minimum effective antagonistic dose is raised the maximum effective dose decreases. Thus, with one and a half times the minimum fatal dose of morphine the effective antagonistic dose of atropine lies between 0.07 and 4.5 milligrammes; with twice the minimum fatal dose it lies between 0.25 and 1.0 milligramme. If these limits are exceeded either way by as little as 1/20 milligramme death results inevitably.

The action of atropine and morphine is greatly influenced by the temperature of the surrounding air. At a low temperature (50° F.) a smaller dose of morphine is fatal than at a high (70°). Rats which had received a large dose of morphine and a small dose of atropine were peculiarly susceptible to cold, and in determining the limits of antagonism between these alkaloids the temperature of the laboratory should be maintained constantly at about 70° F. At a high temperature the stage of tetanic spasms due to morphine was less marked, and death occurred in coma rather than in clonic convulsions. In these experiments the morphine and atropine were injected simultaneously. If the injection of atropine were postponed for thirty minutes after the injection of morphine, the dose of morphine which could be antagonized by atropine was at the most one and a half times the mini-

mum fatal dose, instead of two and a quarter times when the injections were given together. The maximum effective dose of atropine was at the same time lowered. Postponement of the injection of atropine has, therefore, the same effect as an increase in the initial dose of morphine.

Atropine and morphine do not neutralize one another when given together, but produce symptoms in white rats which are not characteristic of either drug. The somnolent condition is less marked than with morphine alone, the stage of tonic contraction sets in earlier, the tonic opisthotonos due to morphine gives place to a tonic emprosthotonos, the tetanic symptoms of morphine are abolished, and the clonic convulsions mitigated. In white rats morphine causes contraction and inequality of the pupils, and atropine given subsequently dilates them. Atropine also removes the paralysis of the bladder due to morphine. In some respects, however, morphine and atropine have the same action: for instance, they both produce local spasms and proptosis. The incomplete antagonism, and the possibility of the atropine reenforcing the morphine and increasing its effect, are the causes of the controversy on this subject. Most observers have employed too large doses of atropine. The smallness of the dose of atropine which can be safely given in morphine poisoning is the most remarkable point brought out by the experiments. In clinical practice not more than 1.5 milligrammes (about 1/12 grain) of atropine should be injected, and the dose should not be repeated. Binz has recommended repeated doses of 10 to 30 milligrammes (nearly ½ grain). It is also most important to keep the patient warm. It is uncertain whether the antagonism between atropine and morphine is mutual—that is, whether morphine can avert death from atropine poisoning, as atropine can from morphine poisoning.—*British Medical Journal,* May 11, 1901.

THE TREATMENT OF PNEUMONIA, INCLUDING THE HYPODERMIC INJECTION OF SALINE SOLUTION.

NEUHOFF, in the *Medical Record* of May 11, 1901, reaches the following conclusions as to the status of the saline infusion treatment in acute croupous pneumonia:

It is a useful adjunct to other treatment in selected cases.

It acts as a powerful heart stimulant when other heart remedies can no longer sustain the flagging circulation.

It increases the secretions, and moistens the tongue and throat as well as the skin. It lessens the delirium. Other observers have noticed that it also improves the respiration, but of this Dr. Neuhoff is not himself convinced.

It is contraindicated in pulmonary edema.

Some pneumonia patients apparently die of collateral pulmonary edema not consequent on a failing heart. In these cases saline infusions are not applicable. Other pneumonia patients apparently die from heart failure, or a pulmonary edema caused by heart failure. In this latter class of cases the saline infusion averts the tendency to death by sustaining the heart when nothing else can, and thus it gives additional time for a favorable turn to occur in the disease.

ON CERTAIN PRACTICAL APPLICATIONS OF EXTRACT OF SUPRARENAL MEDULLA.

The *British Medical Journal* of April 27, 1901, contains an article by SCHAFER as to the results of numerous experiments which have been conducted in the Physiological Laboratory of the University of Edinburgh, by Drs. J. D. Slight, J. Malcolm, and W. E. Frost, which are not yet published nor entirely finished, as the result of which Schafer feels justified in suggesting that a trial should be made of the extract of suprarenal in all cases in which it is desired to strengthen or to induce uterine contractions. The observations which we have hitherto made show that this extract has a far greater power in causing contraction of the muscular tissue of the uterus, whether pregnant or non-pregnant, than any other drug having the same reputed action, and this whether the extract be applied directly to the muscular tissue or be introduced into the circulation. Since the active principle is unaffected by the gastric juice, it can be given by the mouth, but in postpartum cases it would doubtless be more advantageous to inject it directly into the uterine cavity, where it would not only tend to produce immediate contraction of the uterine musculature, but also of the uterine arterioles, and thus more effectually control accompanying hemorrhage. The solution recommended to be used is an infusion of dry medullary substance, thirty grains to

pint of water. This should be sterilized by boiling and injected whilst still fairly hot. Such a solution is a powerful styptic, and its value in this respect may be still further increased by the addition of sixty grains of calcium chloride.

Another class of cases in which the extract in question may prove of the greatest clinical value are those of sudden cardiac failure, whether as the result of shock or hemorrhage, or of an overdose of anesthetics. In these cases the sterilized decoction, which may be of the strength of five grains to a fluidounce and must be filtered, should be injected with a hypodermic syringe very slowly into a superficial vein, or even, in extreme and apparently hopeless cases, into the heart itself through the thoracic wall. Such remarkable results have been obtained from the application of this method to animals in which the circulation had apparently entirely ceased, and in which the heart has been completely resuscitated by the action of the drug, that it is recommended for trial in this class of cases in the human subject.

CLINICAL EXPERIENCE WITH ADRENALIN.

MAYER, in the *Philadelphia Medical Journal* of April 27, 1901, reaches the following conclusions as a result of experience with the active principle of the suprarenal gland in these cases:

1. Adrenalin solutions supply every indication in rhinological practice for which the aqueous solutions of the extract have been hitherto applied.

2. They can be used in sterile form.

3. They remain unchanged for a long time.

4. A solution of 1-to-1000 is very strong and is all-sufficient for operative cases, and 1-to-5000 or 1-to-10,000 for every purpose of local medication.

5. They may be safely applied to persons of every age and of either sex.

The author's experience having been so highly satisfactory with adrenalin, makes him feel justified in saying that in the isolation of the blood-pressure-raising principle of the suprarenal glands we are confronting an epoch-making discovery. The discovery of the active principles of other animal substances will be sure to follow in the near future, and organotherapy will not only derive a new impetus, but exactitude in the administration of these remedies will be sure to follow.

We will no longer be compelled to use an animal extract of potency to-day and an utterly inert one at another occasion, but would always have the same remedy of known strength and power. Percentages of solutions would be exact in every instance, and in appropriate methods could safely be employed with absolutely sterile solutions.

THE TOXIC ORIGIN OF NEURASTHENIA AND MELANCHOLIA.

M. ALLAN STARR, in a paper on this topic in the *Medical Record* of May 11, 1901, lays down the following rules of treatment:

First, diet: This cannot be laid down in a uniform manner for all patients. The majority of them do not digest milk well, and eggs as a rule do not agree with them, though occasionally raw eggs will be digested when cooked eggs will not. Meat of all kinds seems to agree very well with this type of patient, but meat soups are not well digested, and therefore cream soups are preferable. Fish in all forms and oysters usually agree with such patients, and also certain types of vegetables; but potatoes, turnips, beets, and tomatoes are liable to give more trouble than other vegetables. Rice, macaroni, and hominy are usually well borne, but should not be cooked with cheese, and cheese as a rule is not well digested. Patients differ entirely from each other in their capability to assimilate breads and sweets, and it will not do to lay down any rule for the use of these articles; in fact, in these cases various forms of diet should be tried until the articles which disagree are ascertained.

Fluids: Tea almost uniformly disagrees with these patients, making them nervous and increasing their indigestion. In many of the patients coffee acts as a desirable and pleasant stimulant, both in the morning for breakfast and after dinner, and does not in any way interfere with sleep. In others it acts as a poison and should be excluded. It is believed that in all these cases alcohol should be avoided in every form, especially the sour wines and champagne. In about one-half of the cases whiskey can be taken without ill effects, but the stronger wines, like port and sherry, and all liquors are to be avoided. Occasionally a patient can take Rhine wine diluted, or the Australian Vöslauer, without ill effects. Water should be

taken very freely, and a good alkaline or lithia water is often of much benefit.

Drugs: The digestion must be aided in these patients by two classes of remedies—one which stimulates the liver to activity, the other which counteracts the evolution of toxic agents in the intestines. First, these patients are given small doses of calomel (one-tenth grain every half-hour till one grain is taken) every ten days, and a dose of podophyllin (one-fourth grain) every ten days alternately with the calomel. It is also well to stimulate the liver by the use daily in the morning of either Carlsbad salt or a salt made by mixing ten grains of salicylate of sodium with one drachm of phosphate of sodium and half a drachm of chloride of sodium. If this mixed salt is put in a large tumbler of sparkling water of any kind, and taken during the act of dressing in the morning, it will usually be beneficial.

The second object—the counteracting of the toxic agent—is attained by one of three different remedies, and it is never possible to determine exactly which of these three in any one case will prove of service. The first is a combination of five grains of the sulphocarbolate of sodium with one grain of permanganate of potassium, put up in a capsule which is coated with shellac so as to be insoluble in the stomach, and hence dissolve only in the intestine. Such capsules are given after each meal and on retiring. The second remedy that is used is a capsule of salol and castor oil—five grains of salol and ten minims of castor oil. This also is rendered insoluble in the stomach by a coating of shellac. The third remedy is given in the same manner in capsule after eating, and consists of benzoate of sodium two grains, sulphocarbolate of zinc one grain, and beta-naphthol one grain. It has been noted that by the administration of these remedies continuously for a considerable period a steady amelioration in the symptoms of intestinal indigestion will ensue, and, what is much more noticeable, an entire cessation in the periodicity of the alterations of the symptoms; the first evidence of relief being a quieter rest during the night, without any early awakening, and a relief from the depression that occurs early in the morning.

Baths: The use of a hot bath on rising, at a temperature of 104° F. for three minutes, followed by cool sponging for one-quarter of a minute, is of importance, as nothing stimulates the general nutrition of the body better than such a measure; but in this type of patient the cold bath in the morning usually produces distress, and is followed by a feeling of exhaustion, cold extremities, and discomfort.

Exercise and rest: In all cases an increased amount of exercise should be insisted upon, yet in many instances any long-continued exercise is most exhausting and is followed by a rapid action of the heart; hence it is far better for these patients to swing clubs briskly or to play a game of tennis for twenty minutes, thus getting into a pleasant perspiration, than it is to take an hour's horseback exercise or to play a game of golf which requires tramping two miles, though both of these measures occasionally can be endured and are beneficial. One very important element in the treatment is regularity in the amount of rest. These patients should be urged to lie down and relax all the muscles, the clothing being properly loosened, for one-half hour after each meal, and after any active exercise rest of the same duration should be enforced. One of the essential elements of successful treatment in these patients is a pleasant occupation for the mind, as their depression leads them to intensify their nervousness by introspection and self-observation. A variety of occupation should be sought, and every means should be employed to keep them interested and diverted. An outdoor life is far better for them than a life indoors, and therefore if an occupation can be found which involves some activity in the open air it is desirable: the study of botany, the study of forestry, the running of a farm, the care of chickens, the occupation of an engineer or surveyor, the study of landscape gardening—all of these are pleasing occupations for men and women, and it is on this principle that travel and change of scene may be urged upon these patients. But whatever means are employed in their treatment, it seems that the essential element in their success is the counteracting of the toxic product within the body and the prevention of its formation.

SCURVY IN INFANTS.

STARR tells us in the *Philadelphia Medical Journal* of April 27, 1901, that the management of scurvy is very simple, depending entirely upon the substitution of a fresh, antiscorbutic diet for whatever form of unsuitable food may have been the causal factor. If a proprietary food has been em-

ployed, it must be abandoned, sterilization must be discontinued as a process of preparation, condensed milk or food too rich in farinaceous material must be changed to a properly modified, untreated cow's milk mixture, and if the food has been simply deficient in proteids, it must be strengthened so far as the digestive powers admit, and any deficiency supplemented by the use of some other form of albuminoid, as raw-beef juice.

Briefly stated, the essential treatment is the employment of a food composed of cow's milk, cream, water, and milk-sugar, properly proportioned to the age of the infant, and given, so far as the cream and milk are concerned, in the natural, fresh state—*i. e.*, not passed through the separator and not sterilized.

Pasteurization and predigestion at a temperature of 115° F. are admissible in certain cases, but should never be employed when the cream and milk are carefully handled at the dairy and can be kept clean and sweet, and when the infant's digestion is even moderately active.

The juice of fresh ripe fruit—orange juice especially—is a useful addition to diet, and when, as is usually the case, it can be taken without producing diarrhea, is an efficient aid to rapid recovery.

For scurvy in an infant of eight months, an appropriate food schedule is:

First meal, 7 A.M.: Cream ½ ounce, milk 4½ ounces, sugar 1 drachm, water 3 ounces.

At 9 A.M.: One to two teaspoonfuls of fresh orange juice, according to effect on bowels.

Second meal, 10.30 A.M.: Same as first.

At 11.30 A.M.: Two teaspoonfuls of raw-beef juice, free from fat, and with a little salt.

At 1 P.M.: One to two teaspoonfuls of fresh orange juice.

Third meal, 2 P.M.: Same as first.

At 3 P.M.: Two teaspoonfuls of raw-beef juice with salt.

At 5 P.M.: Two teaspoonfuls of fresh orange juice.

Fourth meal, 6 P.M.: Same as first.

At 8 P.M.: Two teaspoonfuls of raw-beef juice with salt.

Fifth meal, 10 P.M.: Same as first.

If orange juice cannot be obtained, or should it disagree, good substitutes are two to four tablespoonfuls of scraped ripe apple (raw), two teaspoonfuls of fresh grape juice, or six solid grapes from which the skins and seeds have been removed.

In addition to the alteration of the diet very little treatment is necessary. Gentle inunction of the limbs with warm olive oil may contribute to the comfort of the patient, and some acceptable preparation of iron, as the ferrated elixir of cinchona, will assist in restoring the strength and building up the blood. If there be great prostration, strychnine and alcoholic stimulants should be administered, and all complications must be met as they arise.

NOTES ON ADRENALIN AND ADRENALIN CHLORIDE.

Dr. INGALS *(Journal of the American Medical Association,* April 27, 1901) has used this solution several times in preparing for operations in the nose, and has found that 1-to-5000 acts with about the same rapidity and intensity as the solution made with 30 grains of the desiccated adrenal glands to an ounce of water. In solutions of 1-to-5000 in normal salt solution, which were opened frequently, a fungus formed at the bottom within a few days; but this has not yet appeared at the end of several weeks, in solutions made with 1 part of adrenalin to 5000 of liquid containing 8 grains of boric acid, 2 drachms of cinnamon water, 2 drachms of camphor water, and 4 drachms of distilled water. From the experiments thus far made, it is believed that this remedy will be of great value in the treatment of acute inflammatory affections of the nasal cavities either in sprays of about 1-to-5000, or in powders of from 1-to-5000 to 1-to-2500 of sugar of milk. These may be used several times daily, and we may confidently expect that in the majority of cases they will promptly remove the congestion and swelling, and that they will keep down the swelling for two or three hours or more. In acute coryza and in hay-fever, it is believed we will get great relief from a solution of one-tenth grain of adrenalin chloride in camphor water or in equal parts of camphor water and distilled water with about eight grains of boric acid to the ounce. In epistaxis from various causes, a similar solution used several times a day will undoubtedly be productive of very great benefit, and in many cases it will speedily effect a cure. In acute inflammation of the fauces, it is probable that solutions of 1-to-1000 would have good effects, but the weaker solutions, such

as were used in the nares, are of little value. In acute and subacute rhinopharyngitis, from the experience already obtained, it is believed that great benefit will be found from using a spray of 1-to-5000 four or five times a day. In several cases in which this remedy has been used in chronic rhinitis, the secretions have been markedly checked, though it is impossible to tell what the result may be. In acute or subacute laryngitis, a solution of 1-to-1000, applied with moderate force, will give very great relief, and it appears probable that when applied to acutely congested cords, in vocalists, it will reduce the swelling and congestion so thoroughly that the voice may be used for two or three hours with comparative ease, and possibly with normal efficiency.

THE SALINE TREATMENT OF DYSENTERY.

BUCHANAN, in the *British Medical Journal* of April 13, 1901, reminds us that in the same journal of February 10, 1900, he published a note on the results of the treatment of dysentery by salines, based on 555 cases, with only six deaths. The present note deals with the results of 300 more cases which have been treated with salines in his hospital during the year 1900 with only three deaths, making a total of 855 cases with nine deaths, or a mortality of only a little over one per cent.

In 453 cases noted last year it was shown that there were 69 relapses, or 1 in 6.5; this year the results are slightly better, there having been only 51 relapses out of 300 cases. Of the 300 cases 1 case relapsed four times, 13 cases relapsed twice, and 37 cases had only a single relapse—total 51. Of the 27 single relapses 8 followed within a month of being discharged from hospital, 9 in from one to two months, 8 in from one to four months, 3 from four to six months, 5 from six to twelve months, and 4 at intervals over one year (one being after four years, and one after two years; these can hardly be called "relapses").

These results are even better than those published last year, and may be taken to express pretty accurately the actual permanent recoveries, as they have been continuously under observation, with the exception of about twenty who were discharged from jail under six months from the date of the last attack.

The monthly distribution of these cases was as follows: January, 17 cases; February, 4; March, 18; April, 13; May, 10; June, 5; July, 36; August, 67; September, 69; October, 30; November, 14; December, 17. These figures, as well as those published last year, show the seasonal prevalence of the disease—namely, in the rainy season, from the end of June till late in October.

The period of their stay in hospital this year averaged eleven days, as compared with ten days in those previously reported. Many might have been discharged earlier, but a stay of several days in hospital after the stools have become normal and full diet has been allowed is a most important point to be attended to in the prevention of relapses.

Of the three fatal cases in this series two were extremely acute cases in which meat-washing stools were constantly passed, and a condition of acute gangrenous inflammation of the colon rapidly supervened. The third fatal case, after the salines had failed, made a wonderful rally after a large dose of ipecacuanha (30 grains), but died some seven weeks later with symptoms of chronic diarrhea. At the necropsy the small intestine was found thin and atrophied, and the large intestine was a mass of chronic inflammation from the cæcum to the rectum. He was a feeble and toothless old man, aged fifty-five.

There is little to add to the remarks made last year. The author used throughout the year the following mixture: Sodii sulphatis, ℥j; aquæ fœniculi, ad ℥j. This was given four, six, or eight times a day (each dose represented one drachm of the saline), as the case required. No dose was repeated on the following day until the stool had been inspected. The saline was continued until every trace of blood and mucus had disappeared. In most cases the inflammatory products had disappeared in two or three days; in others they returned on the third or fourth day, necessitating a repetition of the saline.

In a note on the saline treatment of dysentery, published during the past year in the *British Medical Journal,* one writer from the South African war hospitals referred to the saline method as being "painful," but experience shows it is rather the tenesmus, etc., which is rapidly relieved by the salines, which is "painful;" the soft yellow stools passed after the use of the soda sulphate cause no pain.

A word or two is necessary on the limita-

tions of this method of treating dysentery. It is advocated for acute cases only. It is not considered a safe method for chronic or relapsing cases with ulceration of the colon. In cases in which either the symptoms or the history point to the disease being either chronic or relapsing, Dr. Buchanan only uses the saline for one or two doses during an exacerbation of the chronic state, and then continues to treat the case with soda and bismuth or with salol, with an occasional dose of castor oil. For stools containing scybala nothing is so good as a dose of castor oil guarded by ten minims of laudanum.

The saline treatment of dysentery is now very largely used in Indian hospitals, and it is impressed upon all who wish to try it that unless they can arrange to see the stools daily (at least one morning stool) they can never use the method to its best advantage.

When the patient can be admitted to hospital the saline is the best method of treating acute dysentery, but one might hesitate to apply it in a routine fashion in out-patient practice, on account of the possibility of many patients having had previous attacks, and having their bowels in a state of unhealed ulceration.

From the reports of the use of this drug in the dysentery of the South African campaign, it has not been definitely ascertained as to whether it was not often given in relapsing cases, and when chronic ulceration was present. It is not (except in the limited way noted above) intended for such cases. The success which has this year attended the treatment of the chronic cases is believed to be due to careful dieting on rice water (mar) and boiled milk and tyre (dahi), the use of anthelmintics (a large proportion of the inhabitants of this part of Bengal harbor both roundworms and tapeworms), and the careful occasional use of the saline, with Dover's powder and the intestinal antiseptics. There is no royal road to the cure of chronic dysentery. The author has freely used fresh bael fruit, especially for the chronic cases. This fruit is now again official, but it is doubted if the inclusion of its preparations in the Indian and Colonial Addendum to the British Pharmacopœia will be of much use, as the fresh fruit is available in India almost all the year. It is perhaps worth noting that not a single case of liver abscess was found among the 885 cases here referred to.

As regards the mortality of dysentery, the figures quoted in all recent text-books are somewhat misleading. The death-rate for natives from dysentery is given usually at from thirty to thirty-seven per cent. These figures are based upon cases admitted in an advanced state into public hospitals, many of them having previously suffered from the disease. In the past few years over 60,000 cases of dysentery have been treated in all the jails of India with a mortality of only seven per cent, which is the same ratio as given by Scheube for the dysentery of the Further East. The very favorable rate of just over one per cent for the above 855 cases represents the saline treatment of cases of acute dysentery promptly and immediately treated as indoor patients in a hospital.

MERCUROL INUNCTIONS PREPARATORY TO SKIN-GRAFTING IN LEG ULCERS.

The *Medical Age* of April 25, 1901, contains an article by W. R. STONE in which he says that of all the various uses that have been suggested for the preparation known as mercurol the following seems to be the most satisfactory:

In indolent and dirty leg ulcers many drugs have been tried for the purpose of cleaning them and getting them in a proper condition for skin-grafting. To attain this end the author has employed the following procedure in seven cases. In five of the cases the ulcer ointment of vaselin with twenty grains of mercurol to the ounce was applied to the ulcer for five days. At the end of this time, in each case, the ulcer was found to be clean, with fresh healthy granulations, and in an ideal condition for grafting skin. In the other two cases as a control test the ointment of mercurol (20 grains to the ounce) alone was employed. At the end of ten days in both cases the ulcers were healthy and ready for grafting. Each one was grafted with skin after the Thiersch method, and in every case the grafts took so that at the end of two weeks' time the patient was able to be discharged from the hospital. All these cases were dirty and foul, so that the test was a fair one, and the results compared most favorably with those obtained from other methods employed in the hospital. Usually in syphilitic leg ulcers only about twenty-five per cent give satisfactory results after grafting. Here we have seven cases in succession which have given absolutely positive results. It seems

reasonable to conclude that we have in this ointment a most valuable means for quickly rendering operable cases which ordinarily are treated for months in dispensaries and hospitals, causing trouble and annoyance without giving any hope of cure.

Of course, seven cases are not enough to justify one in claiming everything for this method, but it is believed that at least eighty per cent of syphilitic ulcers could rapidly be made ready for skin-grafting. As to the effects of this drug as a curative medium, it seems that where a drug so rapidly makes healthy a dirty indolent ulcer we might reasonably expect that its continued use ought to so stimulate the ulcer as to lead to its speedy healing. Therefore, it is suggested that some one take this matter in hand for further experimentation for the purpose of ascertaining whether such continued applications of mercurol ointment (20 grains to the ounce or some other strength) would give us the means by which we might heal over the most resistant of all forms of leg ulcers.

If this method of dealing with these ulcers were combined with internal antisyphilitic treatment we might find that we had solved a problem which has caused much thought and expenditure of time on the part of the medical profession.

ERGOT AFTER LABOR.

Editorially the *Lancet-Clinic* of April 20, 1901, has this to say about this topic: Ten years ago nearly every physician administered ergot after cases of labor. At the present time a change has taken place relative to its use. There are still some physicians who always use ergot, some who use it under certain conditions, and a few who never use it. Even at the present time the effects of this drug are not perfectly understood; especially is this noticeable in its action on the nervous system. We do know its action on the circulatory and muscular systems, that it produces powerful contractions of the uterus and diminishes the blood-supply by its constringing action upon the blood-vessels, and hence its indications for use before labor is condemned, except in well defined instances. After labor the advocates of its use administer this drug for its action on the unstriped muscular fibers and its constricting influence on the blood-vessels as a means of promoting rapid involution of the uterus. Its effect we know now to a certainty is not constant. A heavy, large, subinvoluted uterus of some weeks' standing may be stimulated to contraction by the constant use of ergot, but even here the effects are not constant and the results are far from satisfactory. Many advocates of the use of ergot claim that it limits the danger to postpartum hemorrhage, diminishes the force of after-pains, and lessens the tendency to accumulations of putrid material in the uterus, and hence is one of the great factors in the prevention of puerperal infection. Were this so ergot would indeed be an indispensable drug. The author has used ergot about five times in the last one hundred cases, and has nearly discarded it because it is disagreeable to taste, frequently causes nausea and sometimes vomiting, and we cannot rely on its action. Putrid material in the uterus after labor generally means that infection took place at the time of delivery, and all the ergot at our command would not do as much good to the patient as a thorough washing out of the uterine cavity under proper antiseptic precautions. In a normal labor why use ergot when the viability of the woman is good and the fundus of the uterus can be felt as a hard, firm ball above the symphyses? If the uterus is lax, the woman thoroughly exhausted after a long, tedious, badly-conducted labor, as so frequently happens with midwives and the few practitioners who always wait just another hour, then the drug may be administered. It may be used with some benefit after operative obstetrical cases, but the value of this drug has not stood the test of the many claims of its adherents.

EXPERIENCE IN SEARCH OF A CURE FOR ASTHMA IN THE FAR SOUTHWEST; WITH OBSERVATIONS ON THE COMPARATIVE VALUE OF DIFFERENT SECTIONS IN RESPIRATORY DISEASES.

BELL writes an interesting paper in the *Boston Medical and Surgical Journal* of April 25, 1901. In concluding it he gives a few practical points for physicians to bear in mind in sending patients to the far Southwest. They should be sent in the first stage of their disease. Second and third stage patients may have life prolonged, but rarely recover. They should spend the early months of their sojourn in resting and living as much as possible in the open air. If

a patient is highly nervous a place of moderate altitude should be selected. If a patient is liable to hemorrhage we must also be careful of high altitudes. We should not send from home a patient who is too weak to endure the fatigue of the journey, nor one who will be a tax on the charity of the good people of the West. Western people are very benevolent, and are willing to help and sympathize with the unfortunate, but the East ought to contribute much financially to the support of the sick and needy, for there are many who are stranded there, without money and without friends, and who suffer many hardships which they might have avoided by staying at home.

It should be impressed upon every patient that he is to remain in the West for many months after his cough has ceased, and until he has regained and held his weight, and under no consideration should he return to the East till he has received the sanction of a competent and experienced physician. It would be well if every patient sent could from the outset be placed in the care of some good resident physician, and there are many there of the best in our country, while by their side flourishes as a green bay tree every kind of fakir and "path" known, east, west, north, or south.

THE USE OF HOT-WATER VAGINAL INJECTIONS.

To the *New York Medical Journal* of April 20, 1901, BURTENSHAW states that in recommending the use of a large quantity of hot water for each douche, it is borne in mind that it is in opposition to the accepted teaching of many authorities; nevertheless, a careful study of the subject will demonstrate the soundness of this contention. The fact is not lost sight of that in some instances in which it is desired to increase the amount of blood in the pelvic blood-vessels, the vasodilating action is best accomplished by the administration of moderate-sized douches, but these cases are much less frequently met with than those of pelvic inflammation, in which the large douches do so much good.

The frequent filling of the fountain syringe in order to use so large a quantity of water is inconvenient and wearisome; therefore the substitution of an ordinary pail for the bag is suggested, the water being conducted from it by siphonage, or, better, through a short pipe inserted in the side close to the bottom. If household conveniences permit, a Y-shaped arrangement of tubing may be attached to the hot-water and cold-water faucets of a bath-tub, and the temperature of the outflowing water regulated at will, the woman lying on her back in the tub and allowing the irrigation to continue for fifteen minutes. A hard-rubber vaginal nozzle, perforated at the sides rather than at the end, is to be preferred in taking these douches, so that the water may be projected laterally rather than directly on the cervix.

The question of how to dispose of the large quantity of water flowing from the vagina during the progress of douche-taking is of considerable moment, and perhaps it is the inability to decide this point satisfactorily which influences so many women to take the douches improperly. An ordinary douche-pan is entirely too small to collect all the water used, and a larger receptacle is out of the question on account of its use necessitating a change in the position of the body, making it practically impossible for the patient to remain in a recumbent position. A douche-pan having a waste-pipe attached is sold by certain manufacturers, but it is inconvenient to use, because the point of exit of the water must be on the same level as the pan itself, or lower, which usually necessitates the taking of the douche while lying on a bed or couch. Lying on a bed, with the feet supported by chairs placed at the side, and a gathered rubber sheet conducting the water into a proper receptacle on the floor, is a plan that is not commended. The shoulders of the patient are apt to be above the hips in this position, and the bed or floor, or both, almost surely become wet. By all odds the most convenient method to adopt is that of taking the douches in a bath-tub, provided, of course, it is of sufficient size. A couple of bricks covered with oilcloth will serve to raise the hips sufficiently, but a tightly rolled blanket is better, as it prevents the water from flowing toward the head of the tub, and so keeps the body dry. In the case of dispensary patients the author suggests the use of an ordinary wash-tub, two boards being stretched across it a couple of inches apart, upon which the woman lies flat, her legs being flexed, and the waste water finding its way into the tub between the boards.

The size of the tube leading from the syringe, the size and number of the orifices

in the nozzle, and, to some extent, the capacity of the patient's vagina, bear importantly on the conditions governing the douche. Thus, if the tubing and nozzle orifices are larger than those ordinarily used, although the proper amount of water may be employed, it may be too quickly exhausted and the congested condition not relieved. If the vaginal walls and perineal body are much relaxed, or the latter is the seat of a marked laceration, unless the hips are maintained in a raised position the water is apt to drain off too quickly.

The three-gallon hot-water douche is of special value in cases of acute or chronic metritis, in subinvolution, in perimetric inflammation, and in perimetric and parametric exudations. Ovarian pain will frequently yield to it in a surprisingly satisfactory manner, while the bearing-down sensation and pain in the back, concomitants of disorders of the pelvic organs, very quickly disappear. A troublesome leucorrhea, in a majority of instances, will be checked after a very few applications of the douche, due, of course, to the consequent toning up of the vaginal and uterine mucosa. In addition, Burtenshaw's experience has been that, in the case of debilitated women, in whom the pelvic condition is not of sufficient gravity to demand special attention, these douches act as a general systemic tonic and are a valuable adjunct to other methods of treatment.

As a rule, Dr. Burtenshaw directs that the water may be used without the addition of any medicament whatever, but if the accompanying leucorrheal discharge is profuse he orders a tablespoonful of the following mixture to be added to the last quart of water remaining in the douche-bag at the termination of the injection:

Powdered alum,
Zinc sulphate,
Sodium biborate,
Carbolic acid, of each 1 ounce;
Water, 6 ounces.
M.

This combination is cleanly and non-irritating, and acts admirably in selected cases. The addition of a small quantity of ordinary table salt to the water often acts well. In the elytritis characterized by a free discharge of acid reaction, containing shreds of epithelium and numerous bacteria, the use of an alkaline douche is indicated, and nothing better serves the purpose and brings about the desired result than sodium bicarbonate—one level teaspoonful to each quart of water used. Astringents should not be used in these cases. Bichloride of mercury, lysol, creolin, or other antiseptic agents, even in very weak solutions, with the sole exception of weak carbolic acid, should never be employed constantly in the ordinary therapeutic douche. The hot water of the douche greatly increases the power of absorption of the vaginal mucosa, and thus renders the use of these antiseptics dangerous. The action of mercuric bichloride, especially on the lining epithelium, is too well known to require further warning against its use. In mucopurulent catarrhal elytritis, non-gonorrheal in origin, frequently met with in elderly women and young children, the addition of a tablespoonful of wood vinegar to each quart of water used has been recommended. With this agent the author has had no experience. A weak solution of sulphate of zinc (one-half per cent) has answered every purpose in his hands.

Large hot water vaginal irrigations should never be employed by a healthy pregnant woman, for the reason that they reduce the bactericidal power of the vaginal secretions.

THE TREATMENT OF THE TOXEMIA OF PREGNANCY.

The *Medical Record* of April 20, 1901, contains an article by MARX in which, in speaking of drugs, he remarks that there are many to choose from. The refrigerant diuretics of the sodium class (potassium salts are all too depressant) with an infusion of buchu or triticum stand well in the author's estimation. Digitalis is the drug which seems to be the sheet-anchor for most physicians; but in toxemia it is positively contraindicated, since digitalis, possibly because of its digitoxin, is a decided and direct renal irritant and has no place in the treatment of a condition in which there is present at least a functional irregularity of the kidney. Among the drugs of unquestioned value are the vasodilators, and first and foremost nitroglycerin, nitrite of sodium, chloral, and small doses of opium. Among the true heart tonics are sparteine and the caffeine salts, either pure or in one of the usual double combinations which are soluble and given in double the amount. Strychnine is reserved for those cases in which there is a low-tension pulse, and in

this condition it is a very valuable remedy. Little is said in praise of veratrum viride. Unquestionably it will reduce both the volume and rapidity of the pulse; but of what value is such a reduction when it is symptomatic and not curative? The statement has often been made that when under its influence the pulse becomes soft, slow, and compressible, convulsions do not occur. This is emphatically denied, and in unmeasured terms, by the author, since he has seen awful convulsions when the pulse was 60 and alarmingly feeble. In a fatal case, that of the wife of a physician, a convulsion occurred one-half hour after an induced labor. The pulse was full and bounding and 178 to the minute. Hypodermics of full doses of veratrum viride sent the pulse down to 50, when it was hardly to be felt, and yet the worst convulsion the patient ever had occurred at this time, and she succumbed to the malady in a short time. And yet in another woman full doses of a reliable preparation were given to control the fits while the pulse was full and bounding and the face deeply cyanotic, and neither the pulse nor the very severe convulsions were controlled. These and other cases, the results in which were entirely unsatisfactory, make one a skeptic as to the real curative value of this drug; and while it is not doubted that physiologically the drug will achieve its end, yet what we are after is not this—a symptomatic cure restricted to one symptom—but a clinical and complete cure.

Now, finally, as to venesection as pertains to its performance before the uterus is emptied. As in the use of veratrum, so with bleeding: when there is an indication for either, there is also an indication for promptly emptying the uterus. If, then, after the uterus is emptied there is an indication for the abstraction of blood, let it be from that organ; take no measure to insure firm contraction of that viscus, but allow a free and copious hemorrhage to take place until the pulse becomes soft, feeble, and slow. The author is an absolute and firm believer in the abstraction of blood when fully indicated in the cases of women in whom we find a high-tension, rapid pulse, deeply congested and cyanotic face, and threatened or already present convulsions. Whether this abstraction is from the arm or from the uterus, by leeches or wet cupping, is very immaterial so long as we bleed and bleed sufficiently to relieve the intense cyanosis and make the pulse soft and feeble. One of the most desperate cases ever seen by Marx occurred in a young primipara who suffered from an intense toxemia before labor. She was delivered spontaneously of a dead child at the eighth month. Her condition did not improve after delivery, and in twenty-four hours she developed one convulsion after the other, four in the first hour, and soon became absolutely unconscious, with a pulse of 160 and tension very high. In spite of all measures her condition became rapidly worse. The fluid extract of veratrum was repeatedly injected, ten minims at a time, but to no avail; the pulse ran up to 180, with tension greater than the author had ever seen, and deepening coma —in fact, she presented the picture of a dying woman. As a forlorn hope he cut into the elbow veins. Sharp venous spouting occurred, so intense was the congestion, and in ten minutes—the time it took to abstract about one pint of blood—the pulse had fallen to 80 and was soft and feeble, the countenance was one of quiet repose, and she became semiconscious. The same condition, except the coma, returned in twelve hours, when, as she refused to allow the use of the scalpel, sixteen leeches were applied to various parts of the body, and in twenty minutes all her symptoms had disappeared, and from this time on she made a complete recovery.

The lines of treatment advocated above are purely medical, and are advanced from a tentative standpoint. In using them the author is ever hopeful that the tide may turn at any moment for the better. And yet it is a principle with him to operate rather too early than too late; surgical measures are to be instituted at once when medical means have failed us. And when is this? It is a firm dogma with Dr. Marx that when, after a short time of active conscientious treatment, the urea estimation (above all clinical facts) shows no improvement—and certainly always when the excretion decreases progressively—to empty the uterus at once by any method which attains this end most quickly, safely, and surely. After labor the danger of convulsions is very remote, since in only five per cent of the cases are they likely to occur. Should they nevertheless take place, a profuse abstraction of blood in the appropriate cases will give excellent results. Chloral in large doses and chloroform by inhalation are indicated, to ward off the attacks and to allay the seizures. Full doses of codeine,

two to four grains per rectum, have been a useful measure in the author's hands. And finally, he stimulates the emunctories by all means, depending especially upon the use of continuous hot colonic irrigations of a salt solution. These, then, are the measures at one's command which can be recommended.

The author then states that if he has fallen short of the expectations of his readers he has done so probably because something novel and startling had been expected, and that if such were their anticipations they must remember that the problem he was called upon to present to them has been the nightmare of scientists for many years, and is still to this day the moot and abstruse problem it ever has been. But if it should have impressed their minds only with the following conclusions, then, and then only, would he feel that his weak efforts had not been in vain:

1. Toxemia of pregnancy is a complex condition depending on more than one factor.

2. Many women go to term with albuminuria, without symptoms referable to a toxemia. When such symptoms arise they are not caused by the albumin present, but by faulty urea secretion.

3. In the most desperate and malignant cases there is found neither albumin nor casts.

4. Urea is always found markedly diminished in the so-called true toxemia of pregnancy, or urinemias.

5. Finally, a strong plea is made for a regular and methodical course of urea estimation in all cases of toxemia, or for the relegation to secondary importance of the time-honored examination for albumin.

6. Progressive diminution of urea excretion, with or without albuminuria, is the sole indication for the induction of premature labor, which is especially indicated when conscientious medical treatment fails.

TROPACOCAINE HYDROCHLORATE — A SUBSTITUTE FOR COCAINE HYDROCHLORATE IN SPINAL ANESTHESIA.

The *Medical News* of April 13, 1901, contains an article on this new anesthetic by MEYER. He reminds us that tropacocaine was discovered by Giesel in 1891 in Javanese coca leaves, and more closely studied by Liebermann, who succeeded in producing it synthetically. Later Willstatter discovered a way of preparing tropacocaine from tropine, a fractionation product of atropine and hyoscyamine. His method is the one now exclusively employed in the manufacture of the alkaloid. Since then the salt has been studied by many investigators, and the following points of importance in comparison to cocaine were found:

1. Tropacocaine is less than half as toxic as cocaine.

2. The depressing action, both on the cardiac motor ganglia and on the cardiac muscle, particularly the latter, is much greater with cocaine.

3. Recovery from its effects is much more rapid.

4. The solution is by far more stable than that of cocaine hydrochlorate.

It would therefore seem that the surgeon is allowed to have prepared and preserve a solution for spinal anesthesia. It also seems that we may be allowed to sterilize it by boiling. However, this latter point will have to be determined by actual experience.

The author advocates the use of the following solution:

Tropacocaine hydrochlorate, Gm. 0.015 (¼ gr.);
Sodium chloride, Gm. 0.06 (1 gr.);
Distilled water, Gm. 10.0 (2½ dr.).

Each ten minims of this solution contains one centigramme (one-sixth grain) of the salt; fifty minims, therefore, contains 0.05, the generally required dose.

In view of the importance and great interest that is attached to the subject of spinal anesthesia at the present time, the experiences of Dr. Meyer are published thus far if only to add a few more instances, demonstrating the usefulness and superiority of tropacocaine in spinal anesthesia, to the sixteen cases which have been reported by Schwarz.

Meyer has thus far employed spinal anesthesia in the surgery of the urinary system only, such as Bottini's operation, litholapaxy, vesical tumor, primary and recurrent, and confesses that in every instance he has been delighted with its immediate local analgesic effect. While, of course, the unpleasant symptoms accompanying the use of cocaine in spinal anesthesia are deplorable, it must be remembered that general anesthesia also quite frequently is attended by the same annoying symptoms, except, perhaps, the fever. His results have been so thoroughly satisfactory that he fully indorses spinal anesthesia in urinary surgery. Now, however, since the drawbacks hitherto

connected with this mode of producing wide-spread analgesia seem to have been removed, he believes all the more in the use of this kind of anesthesia whenever the indication is present, and is sure others will feel the same way in regard to this question.

Of course, further investigation and careful observation are needed to settle definitely many important and interesting points which are still *sub judice*.

THE TREATMENT OF BLACKWATER FEVER.

SAMBON tells us in the *London Practitioner* for March, 1901, that we have as yet no specific remedy against blackwater fever. The natives of West Africa have used from time immemorial the dried leaves of a local leguminous plant, the *Cassia occidentalis* L., which they administer in infusion, usually flavored with lemon juice. Numberless drugs have been credited with beneficial action, but on insufficient grounds, and very frequently they have proved to be useless or harmful. Their employment has been generally empirical or based on erroneous theories as to the pathology of the disease. The use of styptics in blackwater fever is unpardonable. It was suggested by as gross an error as that which determined their use in bilharzia disease.

Regarding the use of quinine, and judging purely from the evidence of facts, we find that quinine has no specific action in blackwater fever, and that in most cases it appears injurious. Therefore, quinine should not be used in the treatment of blackwater fever.

Bastianelli, who accepts both the malarial and quinine theories of blackwater fever, suggests that the drug should be administered only in those cases in which malarial parasites are found in the blood. If after an attack of blackwater fever ordinary paroxysms of intermittent fever supervene without giving rise to hemoglobinuria, quinine should certainly be administered.

We have as yet no remedy of the slightest value in blackwater fever, and the practitioner should be content to treat the disease symptomatically until a specific treatment be sanctioned by laboratory experimentation. We are at present in the same position with regard to typhoid fever and many other infectious diseases.

A moderate dose of calomel (five grains), to clear the prima via and check the formation of products of decomposition in the digestive tract, might be of service if retained, but irrigations of the colon are certainly preferable. The patient should be allowed to drink freely. We have no better diuretic than water, and it is necessary to keep the kidneys flushed so that the débris of destroyed blood-corpuscles may be washed out from the tubules. Warm alkaline drinks may be used as an emetic to void the great quantity of irritating bile which is secreted during the attack and causes the persistent and exhausting vomiting. When vomiting is persistent water and food should be administered per rectum. The patient should be carefully sponged with tepid water, and this should be done with as little disturbance as possible. Hot fomentations and turpentine stupes may be applied to the loins to alleviate pain and prevent suppression of urine. Gouzien has employed with great success abundant subcutaneous injections of normal salt solution.

The food should be liquid, consisting chiefly of milk and broths. Barley-water, oatmeal-water, lemonade, and the juice of oranges may be given freely. Alcohol is not necessary in all cases, but it should be given when the weakness is marked and the pulse is falling.

The patient should be confined to his bed, and kept in the recumbent position until convalescence is well established. Patients have been known to die from heart failure resulting from slight exertion.

TREATMENT OF MALARIA.

The *London Practitioner* for March, 1901, contains an article by MANSON. He believes that quinine is the only reliable drug in malaria. Properly administered it is thoroughly reliable. Necessary conditions for success are that it be given in such a way that it is absorbed, and that the dose be adequate.

For an ordinary intermittent fever the dose of quinine may be ten grains, given when the sweating stage commences, followed by five grains every six or eight hours for a week, and with the view of preventing relapse, five grains three times every fifth, sixth, or seventh day for two or three months.

For bilious remittent the same treatment applies, care being taken that the use of the

drug be persisted in so long as fever continues. It is a usual and, it is believed, a good practice to give a full dose of calomel followed by a saline cathartic at the outset of treatment of this type of malarial fever.

Quinine is said to act most effectively when the dose is so timed as to exercise its greatest effect while the spores of the parasite are free in the liquor sanguinis; that is to say, it is most effective when given an hour or thereabouts before the expected paroxysm. This may be true, but the fact is of very little practical value, for in an ordinary intermittent to give the drug at this time is to aggravate the headache which generally accompanies the fever, and in the case of bilious remittents, or of pernicious cases, it would be a grave error to await the doubtful occurrence of a remission.

In serious cases it is also a grave error in practice to give quinine in pill, capsule, or tablet form. It should be given either in solution by the stomach or rectum, or, better, hypodermically. Pills, tablets, and the like are apt to remain in the stomach in these cases undissolved.

In grave cases, and where a rapid and certain effect is demanded, it is best to give the drug hypodermically, or, rather, intramuscularly. A soluble salt, such as the bihydrochlorate, should be selected, or, where this is not available, the sulphate dissolved with the aid of half its weight of tartaric acid. The needle of the syringe should be thrust deep into a muscle before injection is made. Intramuscular injection is not only much less painful than subcutaneous injection, but it is less likely to be followed by severe inflammation and abscesses. Needle, syringe, and solution should be rendered thoroughly aseptic by boiling. Strange to say, whereas hypodermic injection of morphine has rarely been followed by tetanus, that of quinine at one time, in preaseptic days, bore an evil reputation in this respect.

If fever does not quickly subside after the administration of the drug in the doses mentioned and diagnosis is assured, there must be no hesitation in doubling or even still further increasing the dose.

It may be safely asserted that any intermittent fever which resists quinine for three or four days is not malarial.

Arsenic, though of value as a blood restorer after a malarial attack, has no power over the parasite, at all events when given in safe doses. Methylene blue in three- or four-grain doses appears to have some virtue, and may be of service in those cases in which quinine, owing to some peculiar idiosyncrasy, cannot be taken. Many other drugs have been recommended for malaria from time to time, especially by those interested in their sale, but we have no reliable evidence that they possess antimalarial virtues in any way comparable to the cinchona alkaloid.

CLINICAL EXPERIENCES WITH CHLORETONE AND MERCUROL.

In the *Canadian Practitioner* for April, 1901, DARCHE tells us that having used these two valuable remedies for a year or more with gratifying results, he wishes to give the following report of some of his experiences:

One night last winter he was called to a case of midwifery. The patient, a primipara, aged twenty, had been in labor for nearly twenty-four hours. Examination revealed a rigid os, and concluding that the progress of the case would necessarily be tedious, he considered this an excellent opportunity to make a useful experiment. Having with him a small vial of three-grain chloretone tablets, he began to administer two of these every hour, for the purpose of testing the general anesthetic effect of the drug. After eighteen grains had been given, he decided to resort to chloroform anesthesia; the cervix was artificially dilated and delivery accomplished by forceps. Although in this case he did not procure the general anesthetic effect of chloretone, he observed that it was necessary to use but a very small amount of chloroform to produce anesthesia, and the patient reacted without nausea and vomiting.

In the case of a large epitheliomatous ulceration of the face Darche made local applications of a one-per-cent solution in the form of a spray and found it to be a very valuable antiseptic deodorant. One day it so happened that, being out of chloretone, he was obliged to treat the ulcer with another antiseptic, which was used for about a week. During that time pus was formed in greater quantity and the odor became almost intolerable, but as soon as the chloretone solution was resorted to again the quantity of pus diminished and the odor almost entirely disappeared, circumstances which he attributes entirely to the good offices of chloretone.

The chief use he makes of this drug is in an ointment, in which it is sometimes associated with mercurol, and often with boric acid, with exceedingly good results. In November, 1900, he had a case of extensive ulcers of the legs, and over the back, in a two-year-old child that was somewhat rachitic. The case had been treated in various ways, and different ointments had been used with no success. He at once prescribed the following:

Pulv. amyli,
Zinci oxidi, ää 3ij;
Mercurolis, gr. xv;
Chloretoni, 3ss;
Petrolati, 3j.

M. et ft. ung. Sig.: To be applied on pieces of lint, constantly recovering the affected areas.

Prior to the application of this ointment the pain in the ulcers had been intense and the itching intolerable; the child constantly scratched himself and was very restless at night. When this ointment was applied the relief was almost immediate, the child began to sleep better, he ceased to scratch his sores, and he became less irritable. Of course, the underlying condition was treated as well. The mother, who was somewhat skeptical as to the value of the chloretone ointment, suspended its use for one night, to her sorrow, for the child was very restless and appeared to be suffering. It was reapplied the next day, and under its soothing influence the ulcers healed in a surprisingly short time.

In December, 1900, a man came to the author's office suffering with ulcerated hemorrhoids, and stated that he wanted nothing but a palliative treatment. Accordingly he prescribed the following ointment, which gave him almost immediate relief:

Mercurolis, gr. v;
Chloretoni, gr. xv;
Acidi boracici, 3ss;
Petrolati, 3j.

M. et ft. ung. Sig.: To be applied three times daily.

He cites yet another case similar to the previous one. A young girl came to his office having an ulcer of the rectum. He prescribed for her Parke, Davis & Co.'s elixir cascara sagrada, one fluidrachm to be taken each morning and evening according to circumstances; also the following:

Mercurolis, gr. j;
Chloretoni, gr. ij;
Acidi boracici, gr. viij;
Olei theobromæ, gr. xxx.

M. et suppos. no. i. ft. Sig.: To be inserted at bedtime.

The cure in this case was rapid, and the pain disappeared almost immediately.

Two cases of pruritus vulvæ are reported in which the very best results were obtained from the use of an ointment of chloretone with boracic acid. The author also had several cases of chronic gonorrhea, in which bougies of the following composition were used with perfect satisfaction:

Mercurol, 1 per cent;
Chloretone, 2 per cent;
Boracic acid, 8 per cent.

For the past six months he has treated all cases of acute gonorrhea in this manner: a one-per-cent solution of mercurol is used as an injection and calcium sulphide is given internally, *ad saturandum,* and nothing else is done. Whether his cases were of a "mild form" or not they nevertheless ran a mild course, lasting not more than three weeks, and in some instances as short as two weeks. One of these patients, whom he saw on the third day, and who had, in addition to a profuse purulent discharge, a temperature of 101° with chills the succeeding night, told him some time afterward that he was cured before his bottle of medicine was empty.

The combination of mercurol with chloretone and boracic acid is regarded by the writer as a very happy one, particularly in the treatment of various acute and chronic affections of the skin and mucous membranes.

THE TREATMENT OF ACUTE GASTRALGIA.

SHORT states in the *Birmingham Medical Review* for April, 1901, that gastralgia is essentially a condition in which it is the patient who should be treated and not the disease. The functional activity of the stomach is not at fault, so that changes in diet as such, or helps to digestion in the way of pepsin, etc., are not of much use. A complete change with alteration of occupation and freedom from worry will often stop the attacks. If this is impossible, and in the very people who suffer from gastralgia it usually is, the best thing to do is to rest the stomach absolutely. This should be done by keeping him down and feeding either by the rectum, or if orally, by giving as little as possible. Two or three days' smart purging at the commencement has seemed to him to be especially valuable. For the attacks themselves morphine and cocaine may be given

in a draught. Sharp counter-irritation over the stomach by blistering is often very useful, just as it is in other forms of neuralgia. In one of the author's cases the application of the faradic current to the pit of the stomach completely removed the pain in a few minutes, but it did not stop the recurrence of the attacks. The relief afforded by the interrupted current, increased in strength until actual pain is produced, in cases of sciatica is beyond question; and similar relief may be anticipated in cases of neuralgia of the stomach so long as no inflammatory condition is present.

THE TREATMENT OF WHOOPING-COUGH.

In the *Birmingham Medical Review* for April, 1901, GODSON gives, as the result of his experience, the following method of treatment: Commence at once with the continuous inhalation of creosote by suspending creosote cloths both in the day and night chambers. The density of the vapor employed can easily be regulated by varying the number of cloths. Treat any accompanying bronchitis, and clear the lungs of all moist sounds as much as possible before using any special internal antispasmodic remedies. Antipyrin may be given in suitable doses in all cases where the lungs are fairly clear, provided that the circulation is good. Expectorants may be combined with the antipyrin. The chest and upper part of the spine should be treated by counter-irritation. Good air, warm clothing, light and wholesome food, are necessary in all cases. The author has employed these methods for the past seven years and is quite satisfied with the results. The average length of time required for cure in a variety of cases during a severe epidemic was under twenty days. Had the details of treatment been always carried out by the patient's friends, even this result would probably have been bettered. He believes that the good qualities of creosote only require to be known for its employment to become general in the treatment of this disease.

THE PRACTICAL CHOICE OF CLIMATE IN PHTHISIS.

M. GORDON gives, in the London *Lancet* of June 15, 1901, the following classification of cases that he thinks should govern us in the choice of climate:

For practical purposes we may divide our patients thus: patients who should be kept at home; patients who should be sent away; and patients who must decide for themselves whether they remain at home or not. And in considering the last two cases we must further divide them into two very different categories—the wealthy and the poor.

Patients Who Should be Kept at Home.—No one would be likely to send away patients suffering from acute miliary tuberculosis, acute disseminated tuberculous pneumonia, or acute pneumonic phthisis in its acute initial stage. One would not advise patients who are the subjects of advanced phthisis with albuminuria, phthisis with ulcerative diarrhea, advanced laryngeal phthisis, diabetic phthisis, rapidly advancing phthisis, or phthisis with persistent high temperature due to tuberculization, to leave the comforts and the care which home alone can provide for them. In the cases only of the poor, where home can provide neither care nor comfort, may a move be advised, and then merely to the nearest institution which can supply the requisite nursing and luxuries. Setting these cases, therefore, aside from further consideration, we turn to those for whom the question of change of climate can be reasonably entertained.

Patients Who Should be Sent Away.—If a patient is already living in a suitable climate his medical attendant would hesitate before advising him to change it, but for practical purposes such cases are but few.

Let us consider first foreign climates as we can order them for the wealthy. For practical purposes we may enumerate the following varieties of cases: (1) Early cases, young, vigorous, uncomplicated, with little or no fever; (2) early cases with recurrent hemorrhages; (3) early cases which have originated in pleurisy or pneumonia; (4) early cases with little or no fever but in weakly persons; (5) early cases, "irritative, such as follow influenza;" (6) "catarrhal phthisis"—*i.e.*, with much bronchial catarrh; (7) "scrofulous phthisis"—*i.e.*, with other tuberculous lesions, in bones, joints, glands, etc.; (8) fibroid phthisis; (9) bronchiectatic phthisis; (10) phthisis with emphysema; (11) laryngeal phthisis; (12) elderly patients; (13) erethric patients—*i.e.*, "nervous, irritable subjects, neuralgic, dyspeptic, bad sleepers, with habitually quick pulse and dry, harsh skins;" (14) anemic patients; and (15) patients with heart disease, arterial degeneration, or feeble circu-

lation—"chilly" people. Taking these in order we shall probably not go far wrong in dealing with them as follows:

1. Early cases—the patients being young and vigorous and the condition uncomplicated, and there being little or no fever—should be sent to the Swiss Alps in preference to any other locality, and of the Alps we may safely take Davos as a type. Their chances of recovery in the Alps are greater than at any other place, at all events in Europe. There is rail all the way to Davos, and the journey from London takes about thirty hours. It is usually unnecessary to break the ascent. The end of September is the best time to arrive there, and the patient should be prepared to remain two winters and a summer. But a patient may go to Davos later in the season, although it is better not to arrive so late as the end of January. On returinng the descent should probably be broken, and Ragatz or Wesen might be chosen as a halting place. Dr. Williams's statistics for patients at high altitudes give the following figures: Of 67 cases in the first stage with one lung affected, 66 per cent were arrested; of 52 in the same stage with both lungs affetced, 38 per cent were arrested; and of 86 in the second and third stages, 16 per cent were arrested. No other climate in Europe can rival these results.

2. In early cases with recurrent hemorrhages the Alps are also indicated, provided that a few weeks have elapsed since the last attack of hemorrhage.

3. Early cases which have originated in pleurisy or pneumonia should also be sent to the Alps.

4. Early cases, uncomplicated, with little or no fever but in weakly persons, if they do not feel cold easily may also do well at Davos. Usually, however, a warmer climate will have to be recommended. If sent to Davos they should break the ascent at some intermediate altitude, such as Ragatz or Wesen. If Davos is decided against they may be sent to Egypt, the Riviera, or to a sanatorium such as Nordrach. The season in Egypt is an exceptionally short one. Patients arrive in November and must generally leave in March. The journey takes about six days from London, and three of these are spent at sea. Helouan near Cairo, or Luxor, or Assouan may be chosen for the season. The results seem to be excellent, but at present no precise statement of percentage of arrests has been discovered. Patients leaving Egypt must find some other resting-place till the end of May at earliest. The Riviera is nearer home, less expensive, but apparently less certain in promoting arrest. It seems unfortunate that separate statistics are not available for the different towns along it. It is difficult to imagine that mistral-swept Hyères and mountain-sheltered Mentone produce the same improvement. Patients should arrive on the Riviera about the last week in October, and should not return to England before the end of May. If the weather becomes too hot they may move inland to Grasse, or travel north in May to some pleasant place like Badenweiler in the Schwartzwald. Nice is said to be avoided, Cannes is uncertain, Hyères is very windy in February and March. San Rémo and Mentone are probably amongst the best places on the coast. It is curious that whilst patients who have wintered in Davos can return to England in May with little danger of chills, patients from the Riviera are very much more vulnerable. The Riviera seems in this respect to occupy a position intermediate between the high Alps and sea voyages, for the tendency to relapse on landing from a sea voyage is a well known characteristic. It cannot, however, be imagined, after a careful perusal of the literature, but that with the constant supervision to which phthisical patients are at last submitting, with the avoidance of chills and of those social excitements which so often prove disastrous, some parts at least of the Rivera should yield in selected cases most satisfactory results.

With regard to sanatoria the most famous ones only may be considered here. The doctrine of systematic supervision of a phthisical patient's whole life in an institution for the purpose where continual open air, abundant pure food, and regulated exercise are the essence of the treatment, was first formulated by Brehmer and was put in practice at Görbersdorf in Silesia, a small village in a sheltered valley 1700 feet above sea level. There the results attained surpassed all previous European records, and daughter sanatoria began to be erected in other parts of Germany. Of these, perhaps the most notable are Dr. Dettweiler's at Falkenstein and Dr. Walther's at Nordrach. In England the Nordrach system is generally gaining in favor, and the excellent institutions now rising in various parts of these islands are more or less modeled upon it. It is difficult at present to compare the

results achieved at different sanatoria, but of their general value an idea may be gathered from the statistics which Manasse published some years ago from Görbersdorf. Of 1390 cases in the first stage 27.8 per cent were arrested; of 2225 in the second stage 6.83 per cent were arrested; and of 1417 in the third stage 0.48 per cent were arrested. There is no special season for going to these sanatoria. The time merely depends on the occurrence of vacancies. The length of stay depends upon the case, and is fixed by the medical man in charge of the institution.

5. Post-influenzal cases with considerable irritation are said to do particularly well on the Riviera.

6. "Catarrhal" phthisis is the one variety of the disease which is said to do well at Madeira. The voyage to Funchal from London occupies about three and a half days in the fine Cape steamers. It is the only place within so short a distance of our shores where winter is really absent. But for the early cases which do so well at Davos a winter in Madeira may be a terrible mistake. Patients liable to diarrhea ought not to be sent to Madeira, and all patients must be instructed to boil the water they drink. When the best has been said of Madeira there still remains in the mind the feeling that it is a risky climate, and the author suggests sending "catarrhal" cases to a sanatorium than to run the risk of recommending it.

7. Patients who are the subjects of "scrofulous" phthisis may be sent to the Riviera.

8. Sufferers from fibroid phthisis will probably do as well on the Riviera as anywhere.

9. In cases of bronchiectatic phthisis the patients will perhaps do best in Egypt.

10. In phthisis with emphysema the patients do well in Egypt or on the Riviera.

11. Patients suffering from laryngeal phthisis may perhaps do best at San Remo or Mentone. Dr. Walther, however, asserts that such cases recover at Nordrach, and so Nordrach will naturally be thought of in sending them abroad.

12. Elderly patients will find Egypt or the Riviera their best wintering place.

13. Erethric patients will find Egypt the best place

14 and 15. Anemic patients, patients with heart disease, arterial degeneration, etc., should probably choose Egypt or the Riviera.

NEPHRECTOMY FOR THE RELIEF OF RENAL TUBERCULOSIS COMPLICATED BY TUBERCULAR CYSTITIS.

BOUGLÉ (*Annales des Maladies des Organes Génito-Urinaires,* February, 1901) reports the case of a patient who, in the latter part of 1897, suffered from pains of the left kidney, and afterward passed blood-stained urine. There followed a uterine sensation toward the end of micturition. Cystitis was diagnosed, and was treated by intravesical injections of silver nitrate. This caused much pain and no improvement. The patient wasted, became extremely feeble, and was confined to her bed. Although the micturitions were frequent, they were not painful. The left kidney was enlarged, and the patient suffered from a cough. On a cystoscopic examination, ulceration was detected about the opening of the left ureter. Ureteral catheterization drew off some residual urine containing pus; in this pus were found tubercle bacilli. The right kidney was found healthy.

Nephrectomy was practiced in August, 1898. Decortication of the kidney was rapidly accomplished, but there was considerable hemorrhage. This hemorrhage was checked by packing, which was removed about two weeks later. The wound closed in two months. The symptoms were not relieved by the operation; on the contrary, the frequency of urination was more marked, and the hypogastric pains became distressing. Instillations with mentholated oil, guaiacol oil, and with iodoform emulsion in oil, were tried to no purpose.

Bouglé was about to make a vaginal opening into the bladder for the purpose of relieving suffering, when incontinence of urine developed. In consequence of this the patient experienced almost immediate relief.

Her general condition steadily grew better, until finally she was completely restored to health, and was able to pursue her vocation as a trained nurse.

Eighteen months after the operation the urine was perfectly limpid. There was no incontinence, and urine was passed at three-hour intervals. There was still a little albuminuria, and slightly marked undue frequency.

FOREIGN BODIES IN THE FEMALE BLADDER.

PICQUÉ (quoted in *Annales des Maladies des Organes Génito-Urinaires*, February, 1901), after calling attention to the case of a hairpin in the bladder which he had extracted after vaginal cystotomy, reports two cases in which extraction was made through the urethra.

The first case was that of an epileptic woman thirty-two years old, in the charge of Mougeot. She was taken with a fit when she was scratching herself with a hairpin. The two points were seen by her husband, but they subsequently disappeared toward the bladder. Four days later the patient was chloroformed, and the urethra was dilated. The pin was felt by a digital examination, was turned until the convex end pointed toward the urethra, and was withdrawn in this way. The patient suffered from no subsequent inconvenience.

The second patient, twenty years old, had introduced a pin into the bladder some days before she was seen. The urethra was dilated; the pin was felt by the finger introduced into the bladder, was turned so that its convex extremity pointed into the urethra, and was then forced out between the finger of one hand introduced into the bladder and that of the other into the vagina.

Pozzi calls attention to an ingenious instrument invented by Collin by means of which the points of the pins are seized in a kind of cannula.

Guinard states that he has relieved one case by means of a button-hook.

Auvray reports the case of a young woman of twenty-three years who presented herself for treatment twenty-four hours after she had passed a hairpin into her bladder. She suffered a great deal of pain in the hypogastric region. She was able to stand or walk only with great difficulty. Urination caused great suffering, hence the bladder was markedly distended. By means of a vaginal examination supplemented by sounding, it was found that the pin lay transversely upon the lower bladder surface immediately behind the urethral orifice. The rounded end was to the left, and the sharp ends were probably driven into the bladder substance, since the pin could not be moved by a sound. By means of the hook devised by Collin and the finger in the vagina, the pin was rapidly seized without the use of chloroform and was withdrawn.

EVERSION OF THE TUNICA VAGINALIS AS A REMEDY FOR HYDROCELE.

TAIT (*Annals of Surgery*, March, 1901) remarks that the essentials of a radical cure of hydrocele are that it shall be devoid of danger, prevent recurrences, and finally that it shall permit the patient to resume his ordinary business in the briefest possible time.

Treatment by the injection of irritating fluids with the purpose of producing adhesive inflammation between the layers of the serosa, described by English and American authors as a radical method, he considers unsurgical, and that nothing less in accord with modern expeditious and clean technique could be imagined.

The so-called Volkmann's operation—incision followed by suture of the edges of the serosa to the skin, with or without drainage—is easily and rapidly done, but its results are uncertain. German authorities admit twelve to fifteen per cent of recurrences by this method. Block's operation, a modification of the foregoing procedure, has resulted in five per cent of recurrences. There is an attempt at early closure of the wound, and after making a free incision of the tunica vaginalis, a three-per-cent solution of carbolic acid is applied thoroughly to the entire surface of the serosa. The cavity is then packed with strips of iodoform gauze. These are removed on the third day, when the skin is sutured without drainage.

Partial incision of the parietal tunica vaginalis has proved useless. Total excision of the serosa is too severe for most cases.

The principle of operation in inversion or eversion of the tunica vaginalis differs absolutely from that of total excision. Instead of removing the serosa it is retained and turned inside out, thus destroying the secreting serous sac. The secreting surface becomes external, and the secretion is absorbed as it forms.

Under local or general anesthesia, an incision is made down to the fibroserous layer. The length of the incision varies necessarily with the dimensions and position of the hydrocele. The tumor, still unopened, is then dissected by means of gauze or the finger, until the mass is free from the cellular layer, especially posteriorly. All bleeding must be checked at this stage by hemostats or ligatures. A long incision is then made in the sac, from which the liquid

escapes. The tunica is then turned inside out, placing the endothelial surface outward, and securing the cut edges of the serosa as high as possible around the cord by means of two or three catgut sutures. The testicle is then replaced in its normal position; it is covered by the skin, dartos, and cellular tissue. Suture of the skin without drainage completes the operation, which requires generally from five to ten minutes.

A very mild reaction and, exceptionally, some tenderness over the testicle may be noted during the first two or three days.

RESECTION OF THE PENDULOUS, FAT ABDOMINAL WALL IN CASES OF EXTREME OBESITY.

PETERS (*Annals of Surgery*, March, 1901) reports a case of resection of the pendulous, fat abdominal wall of a Jewess, thirty-two years of age, performed by Kelly at the Johns Hopkins Hospital. An enormous mass of skin and fat weighing 7450 grammes was removed.

After an amputation nearly five years ago of her breasts, weighing together nearly twenty-five pounds, and which had become almost disconnected from her body by their own weight, the abdomen, until then of normal size, began to accumulate fat. The panniculus adiposus was enormously increased at the time of the operation. When the patient stood erect the pendulous fold covered the upper part of the thighs, and in a sitting posture, the lower border of the fold reached to within two centimeters of a line between the knees. The greatest circumference of the abdomen measured 200 centimeters, and this was at a level twelve centimeters above the umbilicus. Beneath the fold of abdominal skin was a long crease affected with eczema intertrigo.

Kelly performed the operation while the patient was under ether anesthesia. The patient being in a dorsal position, a transverse incision was first made thirteen centimeters above the umbilicus, extending across the abdomen from the line of contact with the table on one side to a corresponding point on the opposite side. This incision measured eighty-five centimeters in length, and in depth extended to the muscular layer of the abdominal wall, the layer of fat being about five to six centimeters thick. A downward dissection was then made, separating the fat from the underlying muscle by cutting and blunt dissection with the finger. In this manner, having turned downward a great slab of abdominal skin, this was lifted up from below, and an estimate made as to how much could be removed without incurring too great tension in closing the wound. A lower transverse incision was then made, about five centimeters above the eczematous crease, beneath the fold of skin, which met the first incision at its ends. The great crescentic mass of skin and fat was thus freed and removed.

In dissecting off the mass about fifteen blood-vessels were tied, several of which were about three millimeters in diameter. The bleeding in the upper incision came mostly from descending vessels, while in the lower incision the vessels cut came from below.

In closing the wound the upper and lower edges of the skin were first brought together in the middle with a silkworm-gut suture; other silkworm-gut sutures were placed at intervals of about ten centimeters all the way across the abdomen; then a series between the first, making the intervals about five centimeters. The approximation was completed with catgut sutures. In all, fifty-six sutures were used, twenty-two of these being silkworm-gut. The line of union was eighty-five centimeters in length.

Two strips of iodoform gauze were placed in each end of the incision for drainage.

The result was a smooth abdomen without any hanging folds.

Strips of adhesive plaster retained the dressings of silver foil, sterile gauze, and absorbent cotton; they also served to prevent undue tension on the sutures. An additional support for the abdominal walls and protection for the dressings was furnished by a tightly applied eight-tailed abdominal bandage.

Firm, primary healing took place. The discharge from the right drain cavity was purulent after the seventeenth day, and on this account the patient's body was kept immersed in a tub of water for several days, until the cavity became filled with healthy granulations.

The patient was discharged in good condition thirty-seven days after the operation, her weight having been reduced from 285 pounds to 226 pounds. When last heard from she said that she could walk very well, her only complaint being extreme nervousness.

Bullitt has reported a similar case in which, in the course of an operation for the radical cure of umbilical hernia, he resected the redundant skin and subcuticular fat of an excessively adipose abdomen. He closed the wound with silkworm-gut and catgut, and obtained firm healing *per primam.*

ABSORPTION OF VARIOUS DRUGS BY THE BLADDER.

BARBIANI *(Annales des Maladies des Organes Génito-Urinaires,* February, 1901) has found by experimental research that dilute solutions of various drugs, with the exception of iodine, are never absorbed by the bladder at the first irrigation, but that if consecutive irrigations are made there is a fairly active absorption. This he attributes to certain functional disturbances of the epithelium incident to the mechanical action of the lavage upon the vesical walls, since such absorption may take place without further alteration of this epithelium. He believes that the complete retention of urine is in itself sufficient to produce such changes in the vesical mucosa as are calculated to encourage absorption.

TWO CASES OF PLASTIC SURGERY.

MOORE *(Intercolonial Medical Journal,* Dec. 20, 1900) reports two cases of plastic surgery. The first case was that of a boy, fourteen years old, who had a gunshot wound of the forearm with destruction of the median nerve. After preliminary treatment of a few weeks the patient was placed under chloroform, and the granulations of the wound were scraped away. The wound was well washed with perchloride of mercury solution, and an Esmarch bandage applied to the limb. Search was made for the distal end of the median nerve, which was found with some difficulty. The proximal end was then found with even greater difficulty. The exposed ends of the nerve were frayed, and the distal end was swollen and edematous, thus appearing somewhat bulbous. Both ends were dissected free from their surroundings for a distance of about an inch and a half. The ulnar nerve was then exposed, first in the upper part of the forearm by an incision over its course, running into the original wound, and by separating the muscular structures. The ulnar nerve was then exposed at the wrist in the same way. The divided ends of the median nerve were now freshened, the sheath of the ulnar was opened opposite the ends, and the median nerve was, in both places, attached to the ulnar. In the upper part of the forearm the muscular tissue between the median and ulnar nerves was raised, the freed portion of the median drawn across to the ulnar under the muscle, and sutures of fine catgut on an intestinal needle passed through the whole thickness of the median nerve, and then through a few of the fibers of the ulnar, inside its divided sheath. Then four or five fine catgut sutures were introduced to bring the sheaths of the nerves into accurate apposition. The distal end of the median nerve was sutured to the ulnar in the same way, only here the position of the nerve was quite superficial.

After the wound surface had been carefully prepared by scraping away the granulation tissue, and the edges had been freshened by use of the scalpel, a large flap of skin with the subcutaneous tissue was dissected up from the upper abdomen, its attached base being at its upper or thoracic side. The arm was then placed straight across the body, so that the flap could be easily drawn across the prepared raw surface on the arm. As much of the free borders of the flap as possible was attached by horsehair sutures to the corresponding edges of the wound. The parts were then dusted with boracic powder, dressed with gauze and absorbent wool, and carefully bandaged. A plaster-of-Paris bandage was applied to secure immobility, the precise area of operation being as far as possible kept free from the plaster, so as not to prevent evaporation through the dressings over the wound. The whole operation lasted two hours. There was a good deal of shock, but this soon passed away.

About a week after operation some discharge began to appear at the lower edge of the dressings, and a sour, disagreeable odor was present. The patient was put under chloroform; the bandages were cut and removed, and the attached base of the flap was then divided. On freeing the arm it was found that the free edge of the flap had not united perfectly, and that a little of the flap was dead. A few sutures were applied, to attach the freshly divided edge of the flap to the arm. It did not fit quite accurately, and a narrow strip of granulating surface was left at the radial side of the wound. A rectangular splint was applied to the outer

side of the arm and extensor surface of the forearm, and the wound was dressed with boroglyceride ointment on gauze, boracic acid powder, gauze and wool. Attention was now directed to the abdominal wound; its surface was scraped, all bleeding stopped, and Thiersch grafts applied from the thigh. The wound was dressed with boroglyceride, etc., and a firm bandage applied. In about a week all sutures were removed. There was a good deal of discharge from the wound, and a little sloughing of the recently divided edge of the transplanted flap was apparent. Already there appeared to be a slight return of sensation in the parts of the hand supplied by the median nerve. A month later the patient could feel in the parts of the hand supplied by the median nerve, but he was not quick nor accurate in localizing. There were still a few unhealed patches on abdomen and on forearm. The patient was placed under chloroform, and Thiersch grafts applied.

Seventeen days later the parts were soundly healed. Sensation in the part of the hand supplied by the median nerve was good, but the patient was slow, though very accurate, in localizing. His fingers were almost straight, his wrist slightly flexed, and there was little power of movement in fingers or wrist. At this time he left the hospital, but attended regularly to have the limb massaged.

The second case was that of a man forty-five years old, who suffered on account of complete destruction of the columna nasi. There was a deep depression toward the tip of the nose, due to destruction of the cartilaginous septum.

An incision in the middle line was made from the position of normal attachment of the columna to the lip, two other incisions parallel to it were made, one on each side, and then two flaps about a quarter of an inch broad were dissected upward from the lip toward the nose. Their bases of attachment were in the situation of the normal attachment of the columna. The flaps were turned on themselves in such a way that the skin surface presented, their attachments being left somewhat oblique to favor this maneuver. The inner surface of the nasal opening, in the region of the nose, was now freshened, and to this surface the free ends of the flaps were attached by horsehair sutures. The edges of the flaps at their skin surfaces were also sutured together in the midline with horsehair. A small V-shaped piece of the upper lip was removed, and the gap from which the flaps were removed was accurately sutured with horsehair. The flap took almost perfectly, and the union of the lip was perfect. There was no deformity. The result was extremely satisfactory.

A plate consisting of two parts was made to remedy the depression of bridge. One part fitted the nose in its deformed position, and the other was to bring the skin into the required position. The edges of the two plates were joined, and beyond the junction a number of perforations were made. An incision was made on the left side of the nose, and with a tenotome the skin and subcutaneous tissue were freed from the underlying parts. On the right side of the nose a puncture was made and the tenotome introduced, and the freeing of the tissues completed. The hemorrhage from this part of the operation was very free. The plate was then with some difficulty introduced through the wound, and manipulated into position. The wound was accurately closed with sutures, and dressed with wools and collodion. Healing took place *per primam*.

By the two operations on the last patient the deformities were practically removed, and the incisions healed so that no appreciable deformity was added.

OPERATIVE TREATMENT OF SPASMODIC TORTICOLLIS.

WÖLFLER (quoted in *Annals of Surgery*, April, 1901) reports the case of a woman, fifty-six years old, who for three years suffered from spasmodic torticollis. At the point of entrance of the spinal accessory of the right side into the sternomastoid muscle, pressure caused a temporary cessation of the convulsive movements. Six centimeters of the nerve was removed. The cure was not completely effected. One year later a resection was made of the first, second, and third cervical nerves as well as of the obliquus inferior. The result was entirely satisfactory. Freedom from convulsive movements gradually took place, and at the end of three years there had been no recurrence.

Resection of the first three cervical nerves originated with English surgeons. Kocher recommended section of the muscle. There are reports in literature of fifteen cases of resection of the cervical nerves with eleven cures and four improvements; twelve cases of section of the muscle with seven cures, three improvements, and two failures·

sixty-eight cases of resection of the spinal accessory with only twenty-three complete cures. The author points to the necessity of employing resection of the first three cervical nerves in those cases in which resection of the spinal accessory meets with failure.

APPENDIX IN RELATION TO PSOAS MUSCLE.

ROBINSON *(Annals of Surgery,* April, 1901) states his conclusions, after studying the appendix in relation to psoas muscle, as follows:

1. Trauma of the psoas muscle produces appendicitis.

2. Muscular trauma produces appendicitis if the damage occurs in the appendix when it contains virulent microbes, and especially if the spiral or kinked condition and periappendicular adhesions produce increased tension of secretion—in short, if drainage be compromised.

3. Over seventy per cent of peritoneal exudates occur in the right iliac fossa adjacent to the psoas, and any peritoneal exudate associated with the ileocæcal appendicular apparatus compromises its anatomy and physiology.

4. In males fifty per cent and in females forty per cent of periappendicular adhesions exist. Periappendicular peritoneal adhesions compromise the fecal circulation of the appendix and obstruct drainage; they compromise blood and lymph circulation; they compromise peristalsis; they traumatize nerve periphery; they compromise the nourishment of the appendix; they cripple and devitalize the appendix, making it unable to resist trauma and infection.

5. When muscular trauma acts on an appendix containing virulent germs compromised by periappendicular adhesion, in drainage, in fecal, blood, and lymph circulation, limited in nourishment, and peristalsis with local devitalized atrophic cells end, appendicitis, with ulceration and obliteration, perforation is liable to occur.

6. The dangerous appendix is the one in a spiral or kinked shape within range of traumatic action of the psoas or other powerful muscles. The size and length of the appendix have no special relation to the frequency of appendicitis.

7. The ratio of appendicitis in man and woman is about three to one.

8. It is chiefly owing to the fact that man's appendix is more exposed to psoas muscular trauma than that of woman. The appendix is practically the only segment of the tractus intestinalis in which muscular trauma produces ulceration or perforation. This is due to lack of appendicular cell vitality, lack of blood, lymph and nerve supply, to atrophic cells, and to poor nourishment.

9. Other segments of the tractus intestinalis than the appendix lying within range of muscular trauma show similar adjacent peritoneal adhesions, but no ulceration or perforation because of more perfect drainage and higher cell vitality.

10. In males (300) the cæcum, lying within range of the action of psoas, presents sixty per cent of peritoneal adhesions.

11. In females (118) the cæcum, lying within muscular trauma of the psoas, presents sixty per cent of peritoneal adhesions.

12. Peritoneal adhesions in the mesosigmoid from trauma of the left psoas are eighty per cent. When the distal end of the ileum lies within the traumatic range of action of the right psoas it presents seventy-five per cent peri-iliac adhesions.

13. The cæcum, distal end of the ileum or sigmoid, though surrounded by distinctly macroscopical peritoneal adhesions, do not present mucal ulceration or peritoneal perforation on account of good drainage and cell vitality.

14. The vitality of other segments of the tractus intestinalis than the appendix resists the conflict, trauma and infection of life's forces, but the appendix does not.

15. The position of the appendix depends on the length of the mesocolico-mesenterium (fixation apparatus); the state of distention of the adjacent viscera, uterus, gastrium, colon, enteron, liver, and kidney; the length of the appendix; the degree of visceral ptosis and laxity of the abdominal walls; the sex, shape of the abdominal cavity; and the existing peritoneal adhesions in the ileocæcal appendicular apparatus.

16. Athletes, baseball and football players, bicycle riders, swimmers, blacksmiths, and trades of vigorous physical activity—in short, heavy workers who vigorously use the psoas—have appendicitis.

17. Cases of appendicitis frequently arise after epidemics which induce catarrh of the tractus intestinalis, as typhoid fever, la grippe; especially after fruit seasons summer diarrhea and catarrh or endoappendicitis arise, because the damaged tunics of the appendix (mucosa and muscularis) do not withstand the muscular trauma of the psoas

with accompanying infectious invasions and the obstructed drainage due to compromising periappendicular adhesions.

18. Second or repeated attacks of appendicitis are less dangerous, because the first attack blocks and obliterates the adjacent lymphatics, so that the radiating channels are limited in capacity to carry infection.

19. Almost all post-mortem and clinical evidence points to the appendix as the organ which is the most dangerous and treacherous of all abdominal viscera.

20. The appendix being an atrophied organ, its cells are devitalized, with a limited blood, lymph, and nerve supply and deficient nourishment; the weakest segment of the tractus intestinalis is therefore an easy prey to trauma and infection.

21. The appendix is relatively large at birth, and it decreases in size through every subsequent decade of life; hence progressive atrophy with devitalized cells and damage from periappendicular adhesions make the appendix a dangerous organ in adult life.

22. One hundred and eighteen females showed partial non-descent of the cæcum (and consequently the appendix) in four per cent.

23. Three hundred males showed partial non-descent of the cæcum (and consequently the appendix) in seven per cent.

24. To find the appendix in operating, follow the distally directed colonic bands (tænia coli) to the point where they converge at the base of the appendix.

25. The data of this paper, confirmed by twelve years of autopsic abdominal inspection and a decade of abdominal surgery, teach that the frequent periappendicular adhesions are not appendicitis but peritonitis; however, the periappendicular adhesions are important steps in the journey of trauma and infection with obstructed drainage toward appendicitis.

26. The foreign body in the appendix is dangerous, because in a non-resisting organ like the appendix it soon produces ulceration, and ultimately perforation, because drainage is deficient.

27. The dangerous appendix is that in spiral or kinked condition when drainage is easily compromised.

28. The appendix, like the mesonephritic rests, is of no physiological or anatomical importance to the adult, but from the atrophic devitalized resistance of its cells it easily succumbs to trauma and infection, jeopardizing the subject to the most profound and treacherous of all abdominal diseases.

29. All fading organs are especially liable to the disasters of trauma, infection, and malignancy.

30. The appendix develops and atrophies irregularly. Its size and function have regard to age.

31. The appendix varies more in position than any other abdominal viscus. It is probable that its position and growth, whether directed proximally, distally, or laterally, have very little to do with the evacuation of its contents if the lumen be not compromised by spirality or adhesions, as any healthy appendix is capable of emptying itself.

32. Its size has the wide limit in variation of all atrophic organs, *e. g.*, the mesonephros.

33. The appendix appears to increase in size from birth to about the twentieth year, when it decreases for every subsequent decade of life.

34. The obliteration of the appendicular lumen by strictures or connective tissue increases from birth to death from constant atrophy and retrograde processes. The frequent incipient attacks of adult life are due to fading vascularity.

35. Of the three organs, distal ileum, appendix, and cæcum, which lie within range of traumatic action of the psoas, the least resistant (the appendix) is surrounded by the vast majority of peritoneal adhesions.

36. Periappendicular adhesions check appendicular peristalsis and traumatize nerve periphery, resulting in appendicular colic.

37. Pain in the right side in walking, or pain passing distalward in the distal extremity, may indicate peritoneal adhesions traumatizing the anterior crural nerve or producing a neuritis.

38. Pain may also arise in the right ovarian plexus or right spermatic cord from extension of inflammatory processes, peritonitis, in either structure.

39. The appendix is the weakest segment of the tractus intestinalis because it lacks in vital cell resistance, its blood supply is limited, it is defective in drainage, it is compromised by more adhesions than any other segment, and it is subject to vigorous muscular trauma.

40. The appendix and mesoappendix are frequently infected from the oviducal pavilions, and *vice versa,* to a large extent. Doubtless the formation of the (atrophic)

appendix may have its origin in erect animals (erect apes, wombat, and man) through absence of the mesenterium commune (curtailing blood-supply), the more complete axil rotation of the tractus intestinalis about the superior mesenteric vessels (again curtailing blood-supply), and through the slow descent of the cæcum forcing its journey through the subserous connective tissue (constricting blood-vessels) at the proximal end of the colon. Hence the formation of the appendix is due to the constriction of blood-supply through extensive axil rotation of the tractus intestinalis about the superior mesenteron vessels and nerve.

41. A factor to consider in regard to the appendix is visceral ptosis, which is due to separation and elongation of the fascial and muscular fibers of the abdominal wall, especially at the linea alba and semilunares, as well as diastasis of the rectiabdominales. The mesenteries, not being made for mechanical support, allow the viscera to follow the yielding abdominal wall; this condition increases the number of potential appendices and multiplies the chances for appendicular disease by compromising circulation, assimilation, and traumatizing nerve periphery.

MALIGNANT SYPHILIS CURED BY ZITTMAN'S DECOCTION.

MacGowan (*Journal of Cutaneous and Genito-Urinary Diseases,* March, 1901) reports two cases of malignant secondary syphilis, with profound, disorganizing, destructive inflammation of the skin, which had nearly proved fatal, which had been uninfluenced by the exhibition of mercury, and which had steadily become worse under the use of kalium iodide up to one ounce daily, but had become perfectly cured under the influence of Zittman's decoction.

In preparing the decoction the author prefers to adhere as closely as possible to the original formula. The preparation spoils readily, especially in hot weather, and it is necessary to keep it in the ice-chest.

The following formula is sufficient for from six to ten days, according to the capability of the patient's stomach:

ZITTMAN'S DECOCTION.

Bruised sarsaparilla root, 4 ounces;
Water, 280 ounces.

Package No. 1.

Fennel seed,
Anise seed, ää 80 grains;
Licorice root, cut,
Senna leaves, ää ½ ounce.

Digest the sarsaparilla root in the water for twenty-four hours, then add package No. 1, and bring to a boil, while suspended in it, in a linen bag, is

Package No. 2.

Powdered alum,
Powdered white sugar, ää 120 grains;
Calomel, 80 grains;
Cinnabar, 20 grains.

Boil gently until the quantity is reduced to a gallon, or a little less, then strain through a fine cloth, and put up in bottles that will hold a little more than a pint. Label this Zittman's Decoction No. 1.

To the dregs of this decoction add the contents of

Package No. 3.

Cardamom seeds,
Cinnamon bark,
Licorice root, ää 60 grains.

Pour in 280 ounces of boiling water, and cook to a gallon. Strain, and bottle as before. Label: Decoction No. 2.

Both the stronger, No. 1, and the weaker, No. 2, are given each day—the first for its purgative and diaphoretic effect, the second for its diuretic properties. No attention is paid by the author to directions about the use of large quantities of hot water with the decoction.

The patient is directed to have a light breakfast at 7 A.M., and at 9 A.M. he receives four ounces of the stronger decoction, as hot as he can drink it. This dose is increased one or two ounces each day until the patient is taking a pint, or as near a pint as he can take without vomiting. The dose will usually purge him, but not violently, from two to four times during the day. The patient stays in bed during the forenoon, and sweats.

He receives a light lunch at 12.30, and at 3.30, while in bed, he takes from half a pint to a pint of the weaker decoction, cold.

Later he gets an alcohol rub, and at 6 P.M. a good dinner, without any green vegetables or fruit. No mercury or any other drug whatever that is intended to influence directly the course of the syphilis is used while the decoction is given. Early in the second week of the treatment improvement may appear; the listless eye becomes brighter, the clouded mind becomes clearer, the demand for food increases, ulcers begin to repair, and other skin lesions commence to disappear. In the fourth or fifth week

the patient will be on the high road to recovery. The better the patient grows the less he likes his dose. Presently, when the nails and ear lobes are pink, and the eyes are clear once more, there may be a return to mercurials to complete the cure.

Of the two patients treated by MacGowan, the poor one, who cheerfully allowed photographs to be made of his face, had at the time the author first saw him papulo-crustaceous lesions upon the face and neck. These lesions had spread until they covered and concealed the features, and even the hairy scalp, with a horrible mask. The movements of the stiffened muscles beneath had cracked and seamed the crust, and through these breaks there constantly oozed a fetid pus, mixed with bloody serum and sebaceous matter, which, drying, increased the thickness of the ochre-colored mass.

All the lesions had the horrible stale, dead odor common to the fermenting secretions of moist, fungating syphilides.

Upon the arms, chest, and back, large papules, nodules, and pustules were scattered, singly or in groups. The exudate and raised epithelium formed in some places crusts with superficial ulceration beneath. At other places there were flat, irregular, warty-like growths, with deep, bleeding cracks between, foul and ill-smelling; where dry they crumbled on pressure, and were nauseous even to look upon. The hands, puffed and swollen to twice their normal size, were covered with vesicles, bullæ, fungating papillary growths, and irregular, excavated ulcers. Upon the legs and thighs was a plentiful rupial syphiloderm, with its piled, oyster-shell-like crusts and deep, painful ulcers, hard-edged, and filled with green pus.

Zittman's decoction was given as a last resort.

The entire body was enveloped, first in Thiersch's solution, then black and yellow washes, then sublimate solution 1:5000, and finally the ulcerated surfaces and crusts were coated with a ten-per-cent emulsion of iodoform in camphorated oil.

In five weeks he was well enough to be out-of-doors; the decoction was stopped, and he was placed on mercury by the mouth. In six months he was well, and has remained well ever since.

ABSORPTION OF LUPUS TUBERCLES UNDER THE INFLUENCE OF SMALLPOX.

BERNHARDT (quoted in *Journal of Cutaneous and Genito-Urinary Diseases,* March, 1901) reports a case of peculiar interest, owing to the fact that microscopical examination of sections taken before and after the attack of variola forms the basis of a study of the changes of the lupus formation after the attack of variola.

The twelve-year-old patient was affected twice since his eighth year with lupus, occupying the wings of the nose, cheeks, upper and lower lips, and sacral region of the body. During his stay at the hospital one hundred and ten cubic centimeters of antitubercular serum of Prof. M. Mencki was administered without any beneficent results to the patient, "in order to determine the value of the serum." At the same time erysipelas of the face developed, and the patient was transferred to the infectious ward, where after recovering from erysipelas he was affected with smallpox. When after recovery from the smallpox he was returned to the dermatological ward, the changes of the lupus upon the face were so remarkable that no characteristic features of lupus could be seen.

The face, nose, and lips, formerly disfigured, presented a normal appearance, and usual features. In the place of former tubercles, infiltrations, and lupoid ulcers, a delicate, slightly infiltrated scar with entirely dry but scaly surface, could be seen. In the scar neither tubercles, nor the defined dark-brown colorations, which usually remain on the places of absorbed tubercles, could be noticed. In the sound region the lupus also underwent involution, but the sharply defined brown coloration could be seen here.

From a microscopical study the author concludes that the reason of the disappearance of the lupoid infiltration under the influence of variola infection lies in the degeneration and subsequent disintegration of the cells which formed those infiltrations. The giant cells especially underwent disintegration, as they were entirely lacking in the sections obtained from the skin which was under the influence of the attack of variola, while their presence was manifest in sections of lupoid skin which was excised before the attack of variola. Both the high temperature and the specific variola toxin probably played an important part in the decomposition and absorption of the cells. The mi-

gratory cells also took part in the absorption, as their presence was abundant in the neighborhood of the lupus nests. But not all cells underwent degeneration. Here and there groups of epithelioid cells could be seen. These cells are the starting-point of a new outbreak of lupus, which usually takes place, as also happened in this case, several weeks later, with a greater tendency to ulceration of the lupus tubercles than before the attack of variola.

HEMORRHAGE BY EROSION IN PERITYPHLITIS.

EHRICH (quoted in *Centralblatt für Chirurgie,* No. 8, 1901) reports a case of appendicitis the symptoms of which were retrogressing, when suddenly in the fifth week there developed agonizing pain, high fever, vomiting, and collapse. Peritonitis was suspected, but on operation there was found an enormous retroperitoneal bleeding, due apparently to an erosion of the iliac artery or wounding of its large branches. The patient recovered, the hemorrhage stopping by packing. In a second case bleeding occurred in a large abscess cavity extending down into the true pelvis. After incision and drainage the hemorrhage stopped in from four to five days.

TREATMENT OF METRITIS.

BEURNIER (quoted in *American Journal of Obstetrics,* March, 1901), after an exhaustive exposition of various forms of treatment, states his own opinions as follows:

Acute metritis should be treated by absolute rest, poultices or ice over the abdomen, glycerin or vaselin tampons and hot douches until acute symptoms subside. Then the methods employed for chronic metritis should be substituted. The chief danger is not from the metritis, but from complicating unilateral or bilateral suppurative salpingitis. In such a case the abdomen should not be opened. Dilatation of the cervix, preferably gradual unless an urgent case, followed by intra-uterine irrigations and dressings alone, are permissible and usually cause evacuation of the tubal contents. The diseased appendages generally require removal later when the acute attack has passed, though occasionally no subsequent intervention is necessary.

Hemorrhagic metritis can be treated satisfactorily by no other means than curettage. The patient should always be warned that, in spite of this and prolonged cauterizations, irrigations, and dressings, recurrences are frequent.

Simple chronic metritis should be treated by gradual, thorough dilatation, irrigations, and intra-uterine applications, preferably of pure tincture of iodine, nitrate of silver, chromic acid, chloride of zinc, etc. Protracted treatment is essential.

Chronic purulent metritis usually yields to the same measures, but when the parenchyma of the uterus is completely invaded by the inflammatory process, especially for a long time, it is necessary to remove a uterus which is irrevocably diseased and can never perform its functions.

Electricity has not yet given sufficient results to recommend its use in any but exceptional cases. The treatment by bromine vapor has not been established.

Amputation, Schröder's operation, or other surgical treatment of the cervix, is often necessary to secure permanent results, as the cervical lesions are generally too deep to be reached by applications or the curette.

Vaginal metritis should be treated by intracervical or intra-uterine instillations of pure tincture of iodine or 1:50 silver nitrate solution.

Diathetic metritis demands improvement of the general condition in addition to the usual measures.

The curette is intended for retained placenta and hemorrhagic fungosities only; in simple or purulent chronic metritis it is inefficient and may cause severe complications.

A uterus which has once been the seat of metritis is always subject, though cured, not to a relapse, but to a fresh inflammation.

After surgical cure of metritis two or three seasons at a hydrotherapeutic resort are of great advantage.

General treatment by purgatives, laxatives, intestinal antiseptics, tonics, antispasmodic and antineurasthenic remedies must never be neglected. Sea baths are advisable.

PSEUDOVAGINITIS OF THE LONG HEAD OF THE BICEPS.

GOLDFLAM (quoted in *Centralblatt für Chirurgie,* No. 11, 1901) has seen in recent years twenty cases of inflammation of the sheath of the long head of the biceps, and

states that this condition is often mistaken for inflammation of the shoulder-joint. He notes that spontaneous pain and that elicited by pressure are complained of in a certain definite region, namely, the sulcus in which the tendon lies; that swelling and crepitation are likewise found only here; that fixation of the shoulder-joint is only apparent and not real, pain being elicited only when certain active motions are made. The causes are chiefly due to strain, and recovery is usual under counter-irritation and rest.

THE OPERATIVE TREATMENT OF TRAUMATIC AND IRREDUCIBLE LUXATION OF THE HIP-JOINT.

HÖFLINGER *(Centralblatt für Chirurgie,* No. 11, 1901), on the basis of three cases of this nature operated on by Kaufmann, has made a study of the subject. He has collected thirty-seven cases from the literature. In twenty-four cases arthrotomy was practiced; two of these were, however, subsequently resected, one because of unsatisfactory functional result and the other because the head of the bone necrosed. In sixteen cases primary resection was practiced. As to the comparison of the results, arthrotomy with replacement of the bone is to be preferred to resection, especially in young people. It is noteworthy that after arthrotomy fifty per cent of the cases suppurated, and that after resection almost an equal proportion.

TREATMENT OF ULCERS OF THE FOOT BY PROTEID BACTERIA.

HONL and BUKOVSKY *(Centralblatt für Chirurgie,* No. 11, 1901) treat ulcers of the foot and leg by compresses moistened in a plasma derived from the growing bacillus pyocyaneus; this they call pyocyaneus protein, and with it they treated one hundred ulcers.

The compresses were reapplied two or three times daily. There was no effect upon the general system, nor was irritation noticed in the skin surrounding the ulcer. Within twenty-four hours the secretion was diminished. In one to ten days the ulcer presented a healthy granular appearance, after which the skinning process began, and was progressive and uninterrupted until complete recovery.

The authors hold that the toxin of the bacillus pyocyaneus can cure every ulcer no matter what its condition. They note that in Janovsky's clinic a two-months' treatment in each of five years cured not over sixty per cent at the best, whilst by the toxin therapathy treatment for a considerably less length of time cured ninety per cent. They do not explain why the remaining ten per cent did not get well.

A NEW GASTROENTEROSTOMY.

MUGNAI *(Centralblatt für Chirurgie,* No. 14, 1901) has devised a method by which the hollow viscera are not opened during operation, but, after having been united by suture, subsequently communicate by a process of necrosis. At first the serous surface of the intestines and stomach are united by continuous suture running for a distance of about three inches. From a half to three-quarters of an inch from this line of suture, parallel to it, the serosa and muscular coats of first the stomach and then the intestine are scorched for about an inch to an inch and three-quarters. By means of a strong silk suture these cauterized surfaces are bound closely together; the thread is passed entirely through the stomach wall at one extremity of the scorched area, and is brought out at the other extremity. It is made to include the scorched area of the intestinal wall in the same way. It is then tied tightly, this constriction insuring the necrosis of the already seriously devitalized mucous membrane. The line of serous suture at first applied is then continued completely around the burned area. Mugnai has operated upon three cases by this method with admirable results.

TUMOR OF THE SPINAL CORD TREATED BY OPERATION.

KRAUSE *(Medical Press,* March 27, 1901) notes that since 1887 thirty-one operations for the treatment of tumors of the spinal cord have been performed. Thirteen of these proved fatal. Up to 1896, ten died out of twenty operated on, but since then only three died out of eleven operations. The improvement is mostly due to better diagnosis.

Krause had a case, a woman sixty-six years old. She first noticed weakness in her legs five years after an injury. For four weeks she had considerable pain after a fall, and three months later pains began in the

right toes and knee. Soon after abnormal sensations were felt in the right leg. She was treated for a long time for sciatica. In 1897 there was girdle pain starting from the sacrum and passing forward over the hips. Soon after slight symptoms of weakness appeared in the leg. This weakness gradually increased, but about three years later she could still walk for about an hour at a time. A few months later she took to her bed. Leitzmann and Böttger diagnosed a tumor of the spinal cord.

There had been no pain in the back since the fall, nor whilst in the hospital, nor on percussion or movement. Tuberculosis and syphilis could be excluded. Motility normal everywhere except in the legs. The right lower extremity was almost completely paralyzed as far as the iliopsoas, with the exception of a small segment in the gastrocnemius. The left leg was normal. There was no atrophy. The reflexes were exaggerated. There was anesthesia of the non-paralyzed leg, and lowered sensation to temperature. Electrical stimulation showed no signs of degeneration. The half-sided paralysis was decisive for the diagnosis. There was further the chronic course and the circumstance that the disease had not attacked the bones.

About three months after the case had been correctly diagnosed an incision was made, and the muscles separated quickly from the bone. The eighth arch was then chiseled through, without finding anything. On doing this to the seventh, however, the tumor was found. It could be felt through the dura as a hard mass, and later on showed itself under the microscope to be a psammoma. The tumor was about the size of a hazelnut, and was easily shelled out. The cord was completely pushed to one side, and when the tumor was removed a depression was left that the tip of the finger could be put into. The wound was closed by suture and drained. The operation lasted forty-four minutes. The result was comparatively favorable. The defect in the bony column was 10½ centimeters, and 11½ when the patient bent forward. It was quite movable. The patient now experienced no trouble. Considering the nature of the tumor the prognosis was favorable, both as regarded life and recovery of function.

CONSERVATISM IN THE DIAGNOSIS AND TREATMENT OF PROSTATIC HYPERTROPHY.

HAYDEN *(Medical Record,* March 23, 1901) after carefully reading the records and histories of many reported cases of operation for prostatic hypertrophy, but especially those by the Bottini method, has been forcibly impressed by many of the following facts:

A large number of patients are now operated on who, to judge from the histories as given, could have been treated probably as successfully by other than operative methods.

Many of the symptoms which these patients present are probably due as much to posterior urethritis and prostatitis as to a true hypertrophied condition.

Hayden is thoroughly convinced that in many of these cases non-operative methods would have given much relief if nothing more, and would have put the prostate, urethra, and bladder in a more suitable condition for any operation that might later have been decided on. He is convinced that cases of chronic congestion of the prostate, with perhaps some atrophy, are not infrequently subjected to an immediate and sometimes needless operation, whose mortality is quite high, and which perhaps might be somewhat lowered if the inflammatory element were more thoroughly appreciated and treated.

The palliative treatment would consist in keeping the urine of a reaction as normally acid as possible, both by internal medication and a properly selected diet; boric acid or urotropin in full doses is very efficient when the urine is either neutral or alkaline. If it is overacid and irritating, there should be administered alkalies, either alone or combined with hyoscyamus, kava-kava, triticum repens, or uva ursi.

Rectal irrigations of hot salt solution at from 110° to 120° F., once or even twice daily, cause a marked improvement in the painful and even inflammatory symptoms referable to the prostate, bladder, and compressor muscle, and also in the size and consistence of the gland. The hot sitz bath and hot perineal applications are also sometimes serviceable.

The bladder and urethra may be medicated by means of irrigations or instillations. Prostatic massage, which rather increases than subdues inflammation, should, if per-

formed, be done very gently, at long intervals, with the finger. Variously medicated rectal suppositories sometimes seem to act favorably. Rest in a recumbent position seems to benefit others, while some seem to be best when up and moving about.

Hemorrhoids should always receive prompt and efficient treatment, as they frequently complicate and aggravate a case. If a stricture is present it should be slowly, gently, and moderately dilated, or if that is impossible and it interferes with treatment and hinders convalescence, it must be incised in a very conservative manner. If the case is complicated by vesical stone, the latter should be removed, either by litholapaxy or a cutting operation.

As a result of the above treatment the prostate becomes much smaller and softer, the amount of residual urine is diminished, and the urine becomes clearer and assumes a more normal reaction, and the pain, frequency, and straining gradually subside.

Now is the time to settle the all-important question in regard to the advisability of operative interference, or of relying on the catheter and suitable local and internal treatment.

The most satisfactory method of operative treatment is the partial or complete removal of the gland, either by the suprapubic or perineal route, or by a combination of these methods. The Bottini operation, of some service in certain carefully selected cases, does not give as immediate and free vesical drainage as does prostatectomy, which is a strong argument against its general adoption, as prompt and unobstructed drainage of the bladder is a most important factor in the treatment of these cases.

Castration, vasectomy, and ligation of the internal iliac arteries are not to be recommended.

ACTINOMYCOSIS.

BARCLAY *(Bristol Medico-Chirurgical Journal,* March, 1901) has no doubt that actinomycosis is still regarded by many as rare and infrequent, in spite of the records. He thinks that because of the obscure and ill-defined symptomatology of the disease, and its close resemblance in clinical features to several much commoner lesions, there is much danger of failing to recognize the condition.

Once implanted, the specific organism, which grows on cereals and grasses, spreads and sets up inflammation. Sometimes an ulcer is formed, at other times a tumor of a pale-yellowish color, globular in shape, riddled with holes of a larger or smaller size containing pus, and very vascular, although it presents a superficial resemblance to the interior of a tuberculous or gummatous deposit. It infiltrates all the tissues, spreading in the intermuscular planes, and even into the muscles, entering into the cancellous tissues of bone and the solid viscera, and sometimes forming communications between the hollow viscera. The growth may be carried by the vascular channels as emboli, and deposited in distant parts of the body.

The percentage for different regions seems to be as follows: Head and neck, 55 per cent; digestive tract, 19 per cent; pulmonary, 14 per cent; skin, 2 per cent; and doubtful, 5 per cent.

In the jaw it generally simulates the common periosteal or alveolar inflammations, or occasionally suppuration in the antrum. One swelling follows another with great inveteracy, sinuses are very obstinate, and induration or infiltration is apt to occur widely in either an upward or downward direction.

Ruhräh lays great stress on the absence of involvement of the lymphatics, which he describes as a constant feature of the disease. There is an early appearance of trismus, which may be attributed to an involvement of the muscles of mastication, although in some cases the temporomaxillary joint is affected. In a case observed by Hoover during life it was impossible to show the presence of streptothrix, but at the autopsy very wide-spread disease was found.

Oliver has described a case where the disease appeared as an ulceration of the mucous membrane of the mouth. Several sores appeared in the mouth. They were curetted and healed, leaving a white indurated patch. A purulent affection of the gums appeared coincidentally; the teeth were removed with the exception of two, to which artificial ones were clamped. An ulcer appeared opposite the clamp in the right cheek and spread rapidly. No streptothrix or tubercle bacilli were found in the scrapings. Iodide of potassium was given in large doses for two months, but the ulceration only extended farther and became very painful. While an operation for swellings that had appeared was being considered, the submaxillary swelling softened. On excision, a thin, greenish-yellow

fluid containing some yellowish-white curdy masses was discharged. The microscope failed to show the streptothrix. A radical operation was undertaken, and several weeks later a lump under the ear softened, and on being opened the same greenish fluid was evacuated, in which, after prolonged search, the streptothrix were found. The patient finally died of arterial hemorrhage, probably from the lingual artery.

Cases of this affection involving the skin are quite rare, but Leser describes two forms —ulceration, and a discrete nodular skin inflammation, with central cicatrization and peripheral extension, as in lupus. He considers the absence of lymphatic involvement almost pathognomonic, and he says the board-like indurations and the grossly nodular conditions which are found in these cases are not usual in the other affections. The disease may also be mistaken for rodent ulcer when it occurs in the skin.

The only absolutely diagnostic feature is the discovery of sulphur granules in the discharge from sinuses or abscesses, or in the sputum or stools. Great stress has been laid by some observers on the absence of involvement of the neighboring lymphatics in all cases. Godlee says the character of the abscess, as determined by the finger, would make him almost certain of its nature—there are indefinite spongy walls, easily breaking before the finger and bleeding very freely. Ruhräh says the back of a patient of Black's was a seat of numerous sinuses, whose puffed and reddened openings, together with the livid intervening skin, gave a perfect picture of actinomycosis; and Volkmann, Boström, and Bernhardt believe that the reddening of the skin, turning later to a violet-blue tint, shading from the center to the periphery, is diagnostic of the disease.

The prognosis seems to depend on the possibility of a radical extirpation of the growth, and on the presence or absence of secondary infection.

Whenever possible the diseased area should be completely excised, and Ruhräh recommends that after this, where permissible, the area should be thoroughly cauterized. The administration of iodide of potassium should always be pushed at the same time, beginning with five or ten grains three times a day, and increasing it to forty or fifty grains thrice daily. For injection into sinuses, etc., a number of substances have been employed—tincture of iodine, carbolic acid, salicylic acid, nitrate of silver solutions, iodoform. The only hopeful treatment seems to consist in excisions, or curetting, repeated as often as necessary and as early as possible, with the internal administration of iodide of potassium up to the limit of the patient's endurance.

RECTOCOLONIC ENTEROLITHS AND CONCRETIONS.

GANT (*Post-Graduate*, April, 1901) notes that intestinal calculi have been found in every portion of the intestine, but that it is agreed that they are to be met with more frequently in the colon and small intestine than in the lower bowel. The author has collected fifty-three cases which show the contrary to be the fact, for out of this number thirty-four were located in the rectum. They are found more frequently in women than in men, and in persons past forty. Brinton maintains that the average age is 53½ years.

This writer groups the many varieties of intestinal calculi and concretions as follows: (1) Gall-stones (biliary calculi); (2) hairy concretions (bezoars); (3) avenoliths (oat stones); (4) enteroliths (intestinal calculi); (5) pancreatic calculi; (6) urinary calculi; (7) coproliths; (8) prostatic calculi; (9) miscellaneous concretions.

In cases of acute intestinal occlusion in elderly persons where there is an absence of definite signs pointing to some other ailment, the presence of an enterolith or gall-stones should be suspected. Occasionally intestinal calculi can be found by palpating the abdomen. When situated in the sigmoid flexure or rectum, the affection is easily diagnosed by digital examination and the aid of the proctoscope and colon tubes. Some idea may be had of the patient's liability to another attack if a chemical and microscopical examination is made of each concretion obtained by operation or evacuation. If it should prove to be a biliary calculus, and other stones are left in the gall-bladder, a second attack is likely to follow.

When they are located in the rectum or sigmoid flexure it is an easy matter to see and remove them with a good light, a large proctoscope, and the rectal forceps. When situated in the colon and small intestine the treatment becomes more difficult and dangerous. Massage and mild salines are indicated to dislodge them when the obstruction is incomplete. Strong purgatives should not be used. Sometimes the concretions

may be evacuated by frequent and copious enemata, composed of oil, water, and glycerin. When there is rigidity of the abdominal muscles, great pain and spasm of the bowel musculature, hot fomentations afford much relief and produce relaxation of these parts. Palliative measures should be discarded when it becomes evident that occlusion is complete, for under such circumstances nothing short of laparotomy, the opening of the intestine, and removal of the stone will save the patient. Khalofoff has on two occasions successfully removed enteroliths by making a colotomy. Concretions sometimes become firmly encysted, and extensive dissections and considerable time are required to deliver them.

The author has tabulated 53 cases, including three of his own; of these 34 were women and 19 men. The number of calculi in each case varied from one to thirty-eight. There was but one stone in 39 cases, and 13 had two or more. The ages ranged from six to ninety-two years. Three were under eight, 6 between fourteen and twenty-five, 4 between twenty-five and forty, 13 between forty and fifty, 10 between fifty and sixty, 7 between seventy and eighty, 1 between eighty and ninety, and 1 above ninety, the average age being 47⅔ years.

SYPHILITIC ULCERATION OF THE URINARY BLADDER WITH MARKED HEMATURIA.

HINDER *(Australasian Medical Gazette,* March 20, 1901) reports the only marked case of syphilitic ulceration of the urinary bladder which he has ever seen.

The patient was a thin, anemic Jew, fifty-five years old. A history of syphilis could not be obtained, but there were suspicious scars on the legs. Nearly a year ago he began to pass water more frequently than usual, and at the end of micturition there was a little bright blood. About three months later the blood loss was at times more profuse. At other times he passed first clear water, then dirty-darkish stuff, and at the last a little pure bright blood. There were also occasionally small black clots, irregular in shape. There was no pain. He passed urine every two or three hours by day, and two or three times at night. Exercise increased the frequency. There was always more or less straining at the end of micturition.

The bleeding was so profuse at the first examination, when a catheter was passed, that the result was practically negative. The hemorrhage lessened after a few days' rest in bed; then a cystoscopic examination showed a large irregularly-shaped, deep-cut ulcer, about one and a half inches behind the left ureteral orifice. Its base was lined with black blood-clot, and the lower edge was somewhat obscured by the same. There was slight oozing of blood from the lower angle of the ulcer. The surrounding surface of the bladder was dull and blood-stained, but presented no especially peculiar features.

The patient was kept in bed. No local treatment was adopted, and twelve grains of potassium iodide was given three times a day. At the end of ten days another cystoscopic examination showed that the ulcer had shrunk, and was much more shallow. There were two or three other stellate fissured ulcers, bright-red in the center, and surrounded by a pink blush. The surface of the bladder generally was cleaner and brighter. A week later only one small superficial postprostatic patch could be discovered. The blood ceased entirely at the end of the ninth day. The patient left the hospital at the end of the month in practically perfect urinary health.

PUERPERAL INFECTION.

WADSWORTH *(Journal of Obstetrics,* April, 1901) presents his conclusions of a study of puerperal infection with special reference to douching and the practical value of bacterial examinations.

By careful technique, uncontaminated specimens of the secretions from the uterus or any portion of the vagina may be easily obtained, and in a convenient form for examination. Considerable time is required to differentiate all the pathogenic species which have been found in these secretions. From a practical standpoint, however, owing to the nature of the comparatively few organisms more commonly present in puerperal infections, a sufficiently accurate diagnosis may be quickly and readily made.

The acid vaginal secretion during pregnancy almost always contains living, though for the most part harmless, microorganisms, which are constant or usual and temporary or casual in their occurrence. Recognized pathogenic species are only occasionally, and usually temporarily, present. Pathological reactions are rarely excited by these organisms, which only become harmful on

entrance to the uterus or through injury to the vaginal mucosa. Though certain gross and microscopical appearances of the vaginal secretion indicate pathological conditions, they only suggest with a variable degree of probability the presence or absence of pathogenic organisms. This can only be accurately determined by bacterial examination. Exceptionally, pathogenic bacteria may remain alive and maintain their virulence in the vaginal secretion during pregnancy and through labor. Since in the lochia the conditions for the growth and maintenance of virulence of the pathogenic organisms are more favorable and the puerperal uterus is more exposed and vulnerable, those cases in which the natural resources of the vagina have failed and the bacteria persist require energetic antisepsis.

The ordinary flushing by a douche does not insure a sterile vagina. This can only be accomplished by the same methods, with obvious qualifications, which are used for the skin and hands. The simple vaginal douche, with possibly a few chance exceptions, is not even an aid to the complete elimination of pathogenic bacteria; on the contrary, the natural protective resources of the vagina are thereby impaired, so that these organisms are better able to establish themselves. Furthermore, pathogenic organisms may be carried into the vagina by careless manipulation, and the weak solutions usually employed are not sufficient protection against this error.

It is therefore evident that routine vaginal douching before and after labor is irrational, ineffective, and may also prove dangerous.

The alkaline secretion of the uterus, including the cervix, under normal conditions, is free from bacteria, but not infrequently organisms have been found in the cervical canal, and even in the uterus, without exciting any apparent reaction in the tissues. The pregnant and puerperal uterus is also usually free from bacteria, but after the first few days of the puerperium organisms are more often frequent in the uterus. Occasionally bacteria invade the uterus from other parts of the body.

The pathological reactions excited by bacterial growth in the cavity and tissues of the puerperal uterus, as well as the more remote manifestations in other parts of the body, are the result of either a toxemia or an infection. But apparently all toxemias of the puerperium are not bacterial, for it is believed that the changes in the exudates, blood-clots, etc., occurring independently of the growth of microorganisms, may give rise to products which on absorption induce an intoxication.

The streptococcus pyogenes is the most frequent and dangerous of the pathogenic bacteria associated with puerperal infection. The staphylococcus, bacterium coli communis, gonococcus, and bacillus aerogenes capsulatus are also important. The disease processes and lesions induced in the uterus by bacteria may be modified and even determined by the degree of contraction of the uterus, which may favor or retard invasion, and the condition of its tissues, which may either favor or not the growth of the microorganisms; on the other hand, the processes and lesions may be greatly influenced by the nature and virulence of the bacterial species.

The different forms of toxemia, and also infection in the early stages when the proper methods of treatment should be instituted, can only be distinguished by bacterial examination. The clinical data, at first insufficient, later often suggest more or less accurately the conditions present.

The uterine douche, like the vaginal, is inefficient, and its indiscriminate use may do serious harm. In the toxemias which are not due to pathogenic organisms the results of uterine douching are immediate, effective, and attended by little danger. In the intoxications and infections excited by pathogenic organisms the processes may be aggravated or disseminated by the douching. The danger of this is greatest in the first days of the puerperium, when the exposed tissues and sinuses offer the least resistance.

Though the diagnosis of severe infection in the first stages is often obscure, the presence of pathogenic bacteria in the uterus may be established by bacterial examination, and then, as the clinical manifestations develop, indications for radical operation may be more accurately determined early in the course of the disease processes. The indications and contraindications for the various forms of curettage are practically the same as those for uterine douching.

Antistreptococcus serum has been produced by several investigators, but with few exceptions the indefinite data concerning its value have not been corroborated; its use, particularly in puerperal infections where organisms other than the streptococcus are often present, is therefore irrational and ineffective.

From the practical standpoint it is evident that the routine management of cases should be freed as far as possible from all procedures which interfere with the natural resources of the body; for these, in the vast majority of cases, are sufficient protection against the invasion of pathogenic bacteria. In the few exceptional cases requiring interference, this should be determined and directed by the bacterial examination.

LOCAL ANESTHESIA WITHOUT RISK OF DANGER.

RASELY *(International Journal of Surgery,* April, 1901) has found chloretone equally as good as cocaine in operative cases, including the incision of abscesses, amputation of fingers, and even in the extraction of teeth, without the least evidence of a depressing effect.

He has operated on a case of complete fistula in a man seventy-four years of age, with fatty degeneration of the heart, using chloretone as the anesthetic for several reasons. No pain was felt, and there was not the slightest manifestation of depression or exhilaration, although syringeful after syringeful of the saturated aqueous solution was used in the line of the proposed incision.

Rasely thinks chloretone an ideal local anesthetic, and he believes it to be sure in effect and safe in result. He thinks it is well adapted to take the place of cocaine in subarachnoid anesthesia.

THE INJECTION METHOD OF TREATING HEMORRHOIDS.

TUTTLE *(International Journal of Surgery,* April, 1901) describes two distinct techniques for the injection of hemorrhoids by cauterizing or irritating agents.

The first consists in the injection of a sufficient quantity of a cauterizing agent, generally carbolic acid, to produce a slough of the entire hemorrhoidal mass, and thus get rid of it. This method, however, has no advantages whatever over the ligature or clamp and cautery. It leaves an ulceration which may result in abscess, and it is impossible to absolutely limit the area of destruction of the tissue. Disastrous results have been reported by Andrews and others following the application of the injection method.

The second technique consists in the injection of a sufficient quantity of a mildly cauterizing agent to produce an inflammatory induration which results in obstruction to the circulation, the adhesion of the adjacent tissues, and the subsequent resolution of the hemorrhoidal tumor. This method, formerly condemned, is gradually coming into use again. When the sphincter muscle is relaxed for the hemorrhoid to be brought well into view without being strangulated, when there is no ulceration of the hemorrhoidal tumor, and when the hemorrhoids are simple internal hemorrhoids, one may with proper aseptic care inject small quantities of a properly prepared fluid into hemorrhoidal tumors with a fair prospect of obtaining a radical cure.

The rectum should be flushed out and irrigated with antiseptic solutions, the anus should be thoroughly scrubbed, and after the hemorrhoid is brought into view it should be washed off with a solution of bichloride of mercury followed by alcohol. The needle should then be introduced at the juncture of the tumor with the mucous membrane, and carried across its base until the mucous membrane on the opposite side of the tumor is reached. The needle is then withdrawn from the mucous membrane of the opposite side, and the solution injected little by little as the needle is withdrawn and carried again first to one point and then to another of the hemorrhoid. From three to ten drops is as much as ever should be injected into any one hemorrhoid; from five to eight drops is ordinarily sufficient. The needle should be left in position for one or two minutes after the fluid is injected to prevent the latter from flowing out through the point of puncture. In case any of the fluid should exude, it is well to apply a little compress saturated in alcohol to prevent excoriation of the mucous membrane.

One hemorrhoid only should be injected at the first sitting. If after the first injection no undue inflammatory reaction occurs, one may inject two or three of the remaining hemorrhoids at the next sitting. If the action of the solution has been satisfactory, on the day following the operation one may find by digital examination an elliptical, smooth, hard swelling at the site of the hemorrhoid.

The bowels should be regulated, but after forty-eight hours the danger of the tumor prolapsing will be past, as inflammatory adhesions retain it in position, and the movement of the bowels by enemas will be perfectly proper. It is best that there should

be a wait of from three to five days between the injection of the first and second hemorrhoid. It is best ordinarily, also, for the patient to lie in bed for the first twenty-four hours.

Tuttle has had to reinject patients after one, two, three, or four years, but it has always been in cases in which only one or two hemorrhoids were injected. These were probably new hemorrhoids.

Tuttle asserts that there is absolutely nothing in the solution of carbolic acid to produce sepsis or pus, and used in the mild solution which he advises it is not sufficiently corrosive to produce necrosis of the parts.

The solution which he employs is a modification of the so-called Shuford's solution, and is as follows:

℞ Acid. carbolici, ℥iss;
Sodii biborat., ℥ij;
Acid. salicylici, ℥ss;
Glycerinæ, ad ℥j.

It should be a perfectly clear, syrupy fluid. When it is returned from the chemist's as a milky-white fluid, it is liable to obstruct the hypodermic needle, and also to produce considerable irritation. Three to ten drops, as said above, is sufficient for any hemorrhoid.

DIAGNOSIS BETWEEN APPENDICITIS AND TYPHOID FEVER.

RICHARDSON *(Providence Medical Journal,* April, 1901) points out that in rare instances an appendicitis in which the abdominal symptoms are mild simulates a typhoid in which they are pronounced.

The symptoms which should put the surgeon on his guard against typhoid are, in the order of their importance, pain without rigidity; pain and tenderness without rigidity; pain and tenderness without rigidity and without tumor; a history of malaise, headaches, and slight fever preceding the pain even if of only twenty-four hours' duration; an initial and sustained temperature of 103° or more preceding the pain; increased area of splenic dulness when other symptoms suggest equally appendicitis and typhoid fever; rose spots; normal leucocyte count.

Sometimes the diagnosis cannot be made.

It will be almost always safe to wait, and the surgeon should wait when from the absence of rigidity and tumor typhoid is suspected, especially if the patient is near at hand. Twenty-four hours will usually be time enough to establish the diagnosis of appendicitis or to rule it out. Many days may be necessary to recognize positively typhoid fever.

The dangers of exploration in the initial days of typhoid are probably slight. The wound pursues an aseptic course. In one case at least, if it existed, the disease was aborted by the removal of the mesenteric glands and the appendix.

The most experienced and careful diagnostician may be misled by the prominence of abdominal symptoms in typhoid into advising operation. Chagrin at such a mistake should not be felt if the examination has been careful and thorough with the possibilities of typhoid being kept well in mind.

When the abdomen has been opened the appendix should be removed. If mesenteric glands easy of access are present they should be removed.

Even with the abdomen opened there is no positive way of recognizing typhoid in the first days. When glands are removed which present the features of typhoidal glands, a rapid convalescence of the patient throws some doubt upon the diagnosis, especially when no typhoid bacilli are found in the glands, and the cultures from blood serum are sterile.

URETERAL ANASTOMOSIS.

PETERSON *(Journal of the American Medical Association,* March 23, 1901) has reached the following conclusions after a historical and experimental research relating to anastomosis of the ureters with the intestine.

The primary mortality of ureterointestinal anastomosis, both in experimental work on animals and in man, is exceedingly high.

The best technique is that requiring the least amount of suturing of the ureters themselves.

All efforts to prevent ascending renal infection in animals or in man where the ureter has been implanted without its vesical orifice have proved futile.

It is impossible to determine in advance the extent of the infection which will result from ureterointestinal anastomosis. The patient may die in a few days of a pyemia, or in a short time of pyelonephritis, or in rare cases may recover from the infection, with resulting contracting kidneys.

Hence the operation is unjustifiable,

either for the purpose of making the patient more comfortable, as in exstrophy of the bladder, vesicovaginal or ureterovaginal fistula, or for malignant disease of the bladder.

The results of ureterointestinal anastomosis through the formation of vesicorectal fistulæ have not been favorable up to the present time.

The success of Frank's experimental work in vesicorectal anastomosis justifies the expectation that the future results of this operation will be more satisfactory.

The primary mortality of uretero-trigono-intestinal anastomosis is low for an operation of this magnitude.

While it cannot be denied that ascending renal infection may occur after this operation, the infection as a rule is of such a type that the chances of the individual's overcoming it are good.

Hence the operation of implanting the vesical flap with its ureteral orifices into the intestine is a justifiable surgical procedure.

There is no valve guarding the vesico-ureteral orifice; nor does the circular muscle layer of the ureter, nor do the bladder muscles themselves, act as a sphincter.

It has been abundantly demonstrated by experimental and clinical work that the rectum tolerates the presence of urine and acts as a good substitute for the bladder, and that good control over the anal sphincter will be maintained.

ATROPINE AS A MEANS OF LESSENING MUCOUS SECRETION DURING ETHERIZATION.

REINHARD *(Centralblatt für Chirurgie,* No. 11, 1901) observes that one of the most unpleasant and even dangerous complications incident to the administration of ether is the enormous secretion of saliva and mucus from the mouth and respiratory tract, which is not only embarrassing at the time the anesthetic is administered but is likely to favor the development of bronchitis and pneumonia afterward. For a long time he has combated this complication by means of atropine, and has noted that inflammatory infections of the lungs were very much less frequent since this procedure has been adopted. He usually combines the atropine with morphine or codeine. The drugs are usually injected hypodermically one hour before the administration of ether. Occasionally patients complain afterward of dryness in the throat, but since the atropine is a distinct stimulant to the cardiac and respiratory centers, its use seems to be indicated for more than one reason.

THE DIAGNOSIS AND SURGICAL TREATMENT OF TUBERCULOUS PERITONITIS.

WALLIS *(Medical Press,* March 20, 1901) remarks that tuberculous peritonitis is often not recognized until the disease is well advanced.

The two main symptoms are swelling of the abdomen and gradual wasting of the frame. Associated with these are a certain amount of fever, constipation alternating with diarrhea, and occasional vomiting and abdominal pain. As the abdomen becomes distended there may be every variety of combination of tympanites and dulness. The disease also simulates many other abdominal troubles.

The ascitic form, one of the three forms into which Aldibert has classified the disease, as its name implies, is characterized by the presence of ascitic fluid in more or less abundance. The fibrous form is a later stage of the ascitic form, which is recovering. Late in this last stage adhesions form and every variety of matting of the intestine occurs. It is this form mainly which stimulates various other abdominal disorders. The ulcerous form is characterized by the caseation and breaking down of the tuberculous deposits. Tuberculous abscesses may form, and in them may be found a direct connection to the intestine, causing a fecal fistula. The coils of intestine may become adherent, and open into each other, or a fistulous opening may occur, after an abscess has formed and been opened.

The early symptoms of the disease are so vague that they are treated as digestive troubles. If these persist, the case should be carefully watched. In all cases where tuberculous peritonitis is suspected, careful inspection should be made with a view to discover if tuberculous disease exists elsewhere. If found it will be a great deal to confirm the diagnosis. The ascitic form is recognized by fever, intestinal disturbances, general wasting, abdominal swelling, with presence of ascites, and occasional vomiting. These are the signs of rickets in children, but if the abdomen of the child is examined and free ascitic acid is found, there can be no doubt of the nature of the disorder. The character of the stools in children helps i-

the diagnosis of the ulcerative colitis, and in some cases this symptom is the main one by which differentiation is made between the colitis and tuberculous peritonitis.

Ovarian cystic disease is often simulated by this ascitic form of tuberculous peritonitis. Norris insists on thorough vaginal investigation in doubtful cases, to see whether the tubes and ovaries can be made out, and he also pays great attention to the general condition, family history, and to the past health of the patient.

The diagnosis between ordinary ascites and that due to tuberculous peritonitis is generally established by the fact that, as a rule, in ordinary ascites the intestines float up to the surface and the abdomen is resonant in front and dull in the flanks. In tuberculous peritonitis the abdomen is dull all over on percussion. In ovarian disease the abdomen is dull in front and resonant in the flanks.

The fibrous form is the one which is most liable to lead to mistaken diagnosis, and it is the variety in which intestinal obstruction is likely to occur. The onset is insidious in character, commencing often with a small amount of ascites which gradually disappears. The first thing that attracts attention probably is some acute intestinal trouble, or the discovery of an abdominal tumor with or without symptoms. In women there may be the suggestion of a large fibroid, and of an enlarged kidney. The adherent coils of intestine may simulate various abdominal tumors.

The ulcerous form, often a further stage of the fibrous, is characterized by the caseation and breaking down of the tuberculous products. The symptoms are marked wasting, hectic temperature, vomiting, and diarrhea. This variety may resemble appendicitis, and typhoid fever may be simulated.

There are a large number of cases where the diagnosis is almost impossible without opening the abdomen. If this is done the ascitic and ulcerous forms offer no further difficulties, but in the fibrous, where the matting of intestines occurs without any marked tuberculous lesion showing itself, percussion of the lump should never be omitted. This will often strike the key-note of the situation and thus prevent fatal damages.

In the medical treatment of the ascitic form it has been estimated, according to Treves, that 9.5 per cent are cured, 19 per cent die, and 71.5 per cent remain stationary. In the surgical cases an analysis shows that mortality was below 3 per cent, marked improvement 80 per cent, and permanent cure 30 per cent.

Five methods of laparotomy in the ascitic form have been adopted: (1) Simple incision with free evacuation of the fluid and closure of abdominal wound. (2) Incision with subsequent flushing of the abdominal cavity with sterile water, saline solution, or some mild antiseptic solution, and closure of the wound. (3) Incision, flushing, and thoroughly drying the abdominal cavity, closing the wound. (4) Incision and drainage. (5) Incision, drying the peritoneum and treating it with some drug, as iodoform, camphorated naphthol, etc., closing the wound. The last method has also been more usually undertaken in cases of the ulcerative form. These varieties have all something in their favor, but the one worth most attention is the laparotomy with or without subsequent washing.

CEREBRAL INJURIES DURING BIRTH AS A CAUSE OF INFANTILE MORTALITY.

MORSE *(Journal of Obstetrics,* April, 1901) believes that the principal cause of the large infantile mortality is found in compression, to which the skull and its contents are subjected during birth. He also believes that this pressure may be from uterine contractions, which in turn may be either short in time but severe in character, or again of a less severe character, but more prolonged, and that it may also be from compression by instruments.

Reviews.

FAVORITE PRESCRIPTIONS OF DISTINGUISHED PRACTITIONERS. With Notes on Treatment. Edited by B. W. Palmer, A.M., M.D. Seventh Edition. New York: E. B. Treat & Co., 1901.

This is a book of about 250 pages, which contains practically nothing else but a large number of prescriptions, many of which are standards with the medical profession. To those who like such a prescribing manual, it can be recommended, but there are doubtless many conditions which the prescriptions in this book would scarcely fit. That it has reached its seventh edition proves that a certain proportion of the medical profession believe in copying the prescriptions of others rather than writing their own. The well trained physician will not need the book. He who has not been well trained

will doubtless find that it is of much aid to him.

A System of Physiologic Therapeutics. Edited by S. Solis Cohen, A.M., M.D. Volume II: Electrotherapy, by George W. Jacoby, M.D. Book II: Diagnosis and Therapeutics.
Philadelphia: P. Blakiston's Son & Co., 1901.

We have already reviewed in the Therapeutic Gazette Book I of Volume I, which contained a large amount of the elementary information which we must all know concerning electricity. The present volume deals first with the general electrical considerations, and then goes on to a discussion of the practical employment of electricity for various purposes. Thus, there are special articles on Electricity in Diseases of the Eye, by Edward Jackson; in Diseases of the Nose, Throat, and Ear, by William Scheppegrell, of New Orleans; in General Surgery, by J. Chalmers Da Costa; in Gynecology, by Franklin H. Martin, of Chicago; and in Diseases of the Skin, by A. H. Ohmann-Dumesnil, of St. Louis. Book II covers a little over 300 pages with its index, and practically all points in the discussion of electricity as a diagnostic and therapeutic agent are discussed.

We have already pointed out in the notice of Book I, Vol. I, that the work was a model of careful preparation, and to those who employ electricity to any extent in medicine it will prove a valuable work of reference, and therefore can be commended.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume II, June, 1901.
Philadelphia and New York: Lea Brothers & Co., 1901.

The contents of Volume II for this year of this somewhat unusually prepared yearbook consists in an admirable article upon the Surgery of the Abdomen including Hernia, by William B. Coley, M.D., in which there are many illustrations, and in which Dr. Coley takes pains to select the good grain from the bad and to present what he has to say in a manner which cannot fail to be of interest to the profession. The next article is one on Gynecology, by Dr. John B. Clark, and is also a model of what a practical surgeon can prepare in regard to this important part of surgery. The third article is one upon Diseases of the Blood and Ductless Glands, etc., by Alfred Stengel, M.D., and the fourth on Ophthalmology, by Dr. Edward Jackson. Because of the skill of its collaborators "Progressive Medicine" is yearly increasing in popularity and usefulness.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D.
Philadelphia and New York: Lea Brothers & Co., 1901.

In the preface to this admirable book Whitman points out that the most distinct advance in orthopedic surgery has been toward the preventing of deformity, an advance that has been made possible by the better understanding of its predisposing and exciting causes. As a natural consequence the treatment has become more direct, more simple, and more effective. It has been the purpose of the author to emphasize this aspect of the subject.

The book is designed particularly for students and practitioners, and is not without tabulations which may prove of service to fellow-workers in the special field.

The reader is first struck by the copious and admirable illustrations, and by the systematic arrangement of the text.

The methods of diagnosis and the minute technique of treatment seem to have received more than usual attention. Among many excellent chapters are to be noted those upon disabilities, and deformities of the feet.

The busy practitioner who has not time to keep abreast with the various advances in special branches of his profession will find this book filled with the most modern information about orthopedic surgery. The work can be heartily commended as a safe, complete, and modern guide.

Operative Surgery. By Joseph D. Bryant, M.D. Volume II.
New York: D. Appleton & Co., 1901.

This volume contains a description of the operations on the mouth, nose, and esophagus, the viscera connected with the peritoneum, the thorax and neck, scrotum and penis, and miscellaneous operations. It contains 827 illustrations, forty of which are colored.

Not only are the lines of incision and the stages of the operations well shown, but the instruments which the surgeons should have ready for the various procedures are photographed in groups, and these photographs are excellently reproduced, thus making a pleasing change from the ordinary cuts

which the instrument-makers place in text-books.

In the part of the work devoted to operations on the viscera connected with the peritoneum, the general principles of intraperitoneal operations are discussed at length, together with such important questions as drainage, application of sutures, ligatures, etc. The various intestinal sutures are very fully described, including the proper application of the Murphy button, and Laplace's intestinal approximation forceps. This part of the work is most completely illustrated and described.

The chapter upon appendicitis is a brochure in itself.

The operations upon the liver and its ducts are given in satisfying detail.

In the part devoted to hernias there are admirable descriptions of Kocher's, MacEwen's, and Bassini's methods, and also of other methods little used, but sometimes mentioned in current literature.

In the description of operations on the thorax, such unusual procedures as posterior thoracotomy and anterior thoracotomy, and surgical intervention for the relief of pathological conditions of the heart and pericardium, are described in full.

This book is to be commended without reservation as an admirable guide to both the skilled surgeon and the practitioner who is occasionally called on to do surgical work.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., F.R.C.P. Lond.

By the time that this letter reaches you we shall have closed the account of another medical year. This year the annual meeting of the British Medical Association is to be held at Cheltenham, and promises to be of considerable general interest, though perhaps it will not be quite so attractive as usual on account of the British Congress on Tuberculosis. The Address in Medicine will be given by Dr. Goodhart, and the Address in Surgery has been entrusted to Sir William Thomson, fresh from his experiences of military surgery in South Africa. The chief discussions in the section of medicine will fittingly deal with two subjects which have received a good deal of attention in the past year, viz., peripheral neuritis in beer drinkers, stimulated by the epidemic of arsenical neuritis in Manchester, of which I sent you a full account in a previous letter, and the chronic diseases of joints commonly included in the terms chronic rheumatism, osteoarthritis, and rheumatic gout. We may perhaps be said to be a step nearer to unraveling the tangle, in that we now recognize the chaos of diagnosis and treatment that exists; it must also be obvious to those who necessarily see much of joint diseases in hospital out-patient practice that much has been included under these headings that belongs to quite another category, and for the present we would rather inquire what may not, rather than what may, be included under these names.

The British Congress on Tuberculosis is to be held in London in the last week of July. It cannot fail to be a success, seeing that those who have had most experience and are best qualified to speak are gathering together from all parts of the world. It is important that from time to time the scientific house should thus be set in order, and the chaff of fashion winnowed from the scientific grain. One unfortunate result in this country of the effort to educate the public in the preventive treatment of tuberculosis has been to introduce a great deal of lay therapeutics into the curative treatment of phthisis. Every one considers himself, or more usually herself, competent to manage a sanatorium, with the consequence that the establishments on a proper footing for observation of results are being worked much below their full capacity. At present we have almost no provision for the open-air treatment of the very poor, the class for which by reason of their circumstances it is impossible to improvise the semblance of treatment in their own homes. The congress will achieve much if it brings about a frank recognition of this shortcoming, and thereby provides an authoritative claim on the generosity of the benevolent. I do not think that the country is yet ripe for municipal interference in this instance, but if alms are not forthcoming, rates must be. "If preventable, why not prevented?" in the words of His Majesty.

Klein has contributed a valuable paper on the "Pathology and Etiology of Pseudotuberculosis" to the Annual Report of the Local Government Board. He accepts unhesitatingly the specific character of the microbe identified by Pfeiffer, and defines pseudotuberculosis as the definite subacute

or chronic disease associated with and caused by Pfeiffer's pseudotuberculosis bacillus. His first investigations were as to the distribution of this bacillus in nature. He succeeded in finding it in the sediment deposited by water of the River Lea, and subsequently in the midstream water of this river and of the Thames in the immediate neighborhood of the intake of two important water companies. These rivers being notoriously contaminated by sewage, the next inquiry was as to whether sewage contained this bacillus and might be the means of imparting it to the water. It was found by injection of the sediment of sewage and of the effluent of sewage into guinea-pigs that both raw sewage and sewage effluent might undoubtedly contain the bacillus. Further investigation into samples of London milk served to show that the sediment of milk sold in London retail shops may contain the bacillus of pseudotuberculosis. This is of the utmost importance as showing at any rate one means by which the bacillus may find its way into the human subject.

In a series of experiments on the pathology of pseudotuberculosis Klein shows how easily the disease may be communicated by ingestion to the Peyer's patches, to the mesenteric lymph glands, and further to the spleen and liver of guinea-pigs; also that by inoculation the disease may readily be communicated to the ape. We have now too incontrovertible evidence that the nodular deposits of pseudotuberculosis do occur in man. Speaking generally, the morbid deposits consist of round-cell infiltrations accompanied by rapid death and necrosis not only of the infiltrating material, but also of the normal tissue elements surrounding it—the so-called coagulation-necrosis. A characteristic distinction between the nodules of pseudotuberculosis and those of true tuberculosis is the absence of giant cells in the former; Klein only found a suggestion of multiple nuclei in the cells of some nodules in one spleen. He insists on the following points in framing a differential diagnosis: (1) The absence of giant cells; (2) the absence of Koch's bacillus; (3) the copious presence of the bacillus of pseudotuberculosis; (4) the more rapid development of pseudotuberculosis than of true tuberculosis. Within the morbid deposits a striking feature of the bacillus of pseudotuberculosis is its intracellular disposition in the lymph glands and other sites. Film specimens show abundant bacilli lodged either in dense masses within swollen leucocytes, or occurring in groups in the detritus of the bodies of leucocytes. In order to obtain pure cultures of the bacillus in isolated colonies, all that is necessary is to take a particle of necrotic material from a morbid deposit and shake it up in a few cubic centimeters of sterile salt solution, and to smear a small drop of this with a platinum loop over the slanting surface of gelatin or agar contained in a test-tube, or over the flat surface of a gelatin or agar plate. Culture from the blood is successful only in the early stages of the disease, or when the animal has died within a week of subcutaneous or intraperitoneal injection. Klein describes in detail the mode of growth in various media, and the report contains a series of beautiful colored reproductions of the characteristic appearances.

Another series of experiments was devoted to the question of protection in pseudotuberculosis. For this purpose fortunately several guinea-pigs were available that had passed through and recovered from a first subfatal injection, and these were injected with a dose found to be fatal to control guinea-pigs. The result was that no local tumor and no general disease was caused by the injection, and the animals remained well, showing that they had been effectually protected by the first injection.

Having established the above facts, Dr. Klein set to work to inquire whether pseudotuberculosis and true tuberculosis are capable of exerting influence one upon the other when both are induced in the same animal. The first series of experiments made appeared to show that previous injection with tubercle does not affect the development of pseudotuberculosis on subsequent injection with the bacillus of pseudotuberculosis. A second series of guinea-pigs were injected first with tuberculous material and subsequently with cultures of pseudotuberculosis. From these it appeared that the first established tubercular process became retarded to a certain extent by the more rapidly progressing pseudotuberculosis, and that the antecedent tubercular process did not seem to have any marked effect in enhancing or inhibiting the subsequently induced pseudotuberculosis. For the next investigation three guinea-pigs were used that by previous injection of sterilized culture of bacillus pseudotuberculosis had been rendered immune to a subsequent injection with an ordinarily fatal dose of the livir-

culture of this microbe, and which had completely recovered from the local tumor and ulceration caused by the latter injection. The result showed not only that their recovery from a local pseudotuberculosis did not interfere with the subsequent development in them of tuberculosis when inoculated with tubercular virus, but that on the contrary it favored the tubercular process. The last series of inoculations seemed to justify a further conclusion that antecedent injection of attenuated bacilli of pseudotuberculosis produced a decided effect in retarding induced tuberculosis. Injection of animals in which the process of pseudotuberculosis of the inguinal lymph glands was still present with tubercular virus, though it did not prevent the development of tubercles in the lymph glands and viscera, nevertheless appeared to produce tubercular disease of a decidedly slower and less extensive character than that in control guinea-pigs. This is merely an outline of the very elaborate experiments that are detailed in the report. It still remains to be seen what would be the result of simultaneous injection of guinea-pigs with the virus of tubercle and the virus of pseudotubercle.

Another interesting report is that by Dr. M. H. Gordon on the bacteriology of scarlatina. It is impossible in the space at my disposal to reproduce even in outline the extensive bacteriological investigations from which he draws the following general conclusions:

1. That the streptococcus scarlatinæ or conglomeratus is a special pathogenic microbe distinct from streptococcus pyogenes on the one hand and bacillus diphtheriæ on the other.

2. That it occurs constantly in the mucous secretion on the surface of the tonsil or fauces in scarlatina, and may persist there in some cases up to a period remote from the date of the attack.

3. It may not be present in the nasal discharge of scarlatina. It has not, however, as yet been detected in the aural discharge of that disease.

4. It can penetrate the system and be obtained in pure culture from a serous effusion occurring as a complication in the course of scarlatina.

5. It may be present in the blood and tissues of fatal cases of scarlatina, and may not infrequently be obtained in pure culture from thence.

6. The character of streptococcus scarlatinæ as isolated from the tonsil of a mild but typical case of scarlatina is apt to undergo modification when a mouse dies from infection with it; and similar modification is found in the case of streptococcus obtained when a patient succumbs to scarlatinal infection. In each instance this modification generally comprises increase of virulence accompanied by diminution of those morphological and cultural characteristics that distinguish streptococcus scarlatinæ from the streptococcus pyogenes, though close examination shows that sufficient differences survive to still permit differentiation of this streptococcus from streptococcus pyogenes.

On the strength of these investigations Dr. Gordon claims to have established that the streptococcus scarlatinæ or conglomeratus is the specialized and essential agent of that specific infection known as scarlatina or scarlet fever.

The medical societies have for the most part terminated their sessions. An important discussion, however, on the operative treatment of cerebral abscess was introduced by Mr. Ballance at a recent meeting of the Otological Society of the United Kingdom at Edinburgh. He advocates chloroform anesthesia and rejects the use of morphine or strychnine before opening the dura mater. He prefers a flap to a crucial incision. In exploring for temporosphenoidal abscess he recommends the insertion of the trephine about seven-eighths of an inch above the suprameatal spine, with a view to exposing the lowest part of the middle fossa just external to the tegmen antri and tegmen tympani. He also advocates a large opening, the trephine opening being subsequently enlarged by forceps, or a better suggestion seems to be the use of a specially large trephine. In the case of cerebellar abscess he recommends that the trephine be placed upon the bone so that its anterior edge touches the posterior border of the mastoid process—its upper edge being just below Reid's line—so as to avoid the horizontal and vertical portions of the sigmoid sinuses. One speaker urged the importance of making two separate openings if after a negative exploration of the temporosphenoidal lobe it were found necessary to explore the cerebellum, instead of prolonging the one opening into the other. An advantage of a large opening is that it might be possible to determine by palpation that the abscess is immediately under the cortex. He considers a sharp-pointed, long, and narrow

knife a much superior instrument to the trocar and cannula for incising the abscess cavity. Some speakers advocated a large opening also in the cerebral substance. For irrigation purposes he recommends normal saline solution, but no cerebral abscess should be irrigated unless free escape of fluid is insured by two tubes. The drainage-tube should be maintained *in situ*, and only gradually shortened as the cavity heals from the bottom. Dr. Milligan recommends in the drainage of temporosphenoidal abscess the introduction of two tubes into the abscess cavity—one through the trephine opening in the squamous portion of the temporal bone, and the other through the middle ear. Ballance considers hernia cerebri an evidence of sepsis, but on this point there was considerable dissent, several speakers attributing it to excessive intracranial pressure, relief of which should be obtained by enlarging the opening in the bone. Milligan urged the importance of bacteriological examination, so that in cases of streptococcus infection antistreptococcic serum might be employed.

At a recent meeting of the Royal Medical and Chirurgical Society the treatment of alcoholic cirrhosis of the liver by laparotomy, which has found some slight support in this country, was brought up for discussion. The practice, however, found very little favor with those who expressed their views on the subject. There was a consensus of opinion that where the dropsy is due to cirrhosis of the liver, and not to peritoneal or cardiac conditions associated with the cirrhosis, laparotomy is not only useless but dangerous. It is founded on the fallacy that in cirrhosis the ascites is due merely to mechanical causes, though it is well known that ligature of the portal vein does not necessarily cause ascites. The difficulty in any given case is to decide whether cirrhosis is present. In that case relief by tapping is more effective temporarily, though doing little or nothing to delay the inevitable fatal issue. Hale White dwelt on the similarity of the cirrhotic liver and the cirrhotic kidney; in each case the lesion was merely part of a general change, and in each case death came by coma. A suggestion was also put forward that swelling of the feet coming on before swelling of the abdomen pointed to the existence of cirrhosis—that is to say, to a toxemic rather than a mechanical dropsy. A clear recognition of these facts would remove much of the mystery that surrounds the clinical picture of cirrhosis. The condition is essentially latent, and the dropsy directly due to it is a terminal feature for which we know no remedy. On the other hand, cirrhosis is very frequently associated with mechanical conditions, mainly of the peritoneum, that induce ascites. Some of these may undoubtedly be relieved by tapping, and possibly by the radical operation of Rutherford in promoting abdominal adhesions so as to advance a collateral circulation. But if in these cases cirrhosis were present, the fatal issue by coma is only a matter of time, and may indeed be ushered in by dropsy, that cannot be so relieved.

You will no doubt have heard that Mr. Andrew Carnegie has brought back a useful wrinkle from across the Atlantic, and following the good lead of the States has determined to allocate two millions of his private fortune to the betterment of education, particularly in medicine and science, in his native country. London still remains the poorest city in the world in all that pertains to scientific education, and no millionaire has yet appeared to cut the Gordian knot.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

One of the most important events of the past month in the Paris medical life was the opening of the gynecological lectures by Professor Pozzi, who made a long speech and described how he at last had been able to obtain the creation of a chair of gynecology in the city of Paris, the university of which was the last to adopt such a measure. He described his travels abroad, through Germany, where he visited Hegar's clinique at Freiburg-in-Breisgau, and Schröder's service in Berlin; and Albert's and Billroth's at Vienna. As early as 1887 he was allowed by the dean of the faculty, Professor Brouardel, to give lectures, and shortly afterward he wrote his treatise on clinical and operative gynecology. In 1898 the Municipal Council was asked by M. Astier, a chemist, and one of its members, to establish a clinique, and a vote was passed last year putting aside a certain sum for this use. Dr. Pozzi was given the position. His competitors were Segond, Bouilly, and Doléris. Dr. Pozzi described the progress made by gynecology during the last century, spoke of the conservative tendencies which were beginning to make themselves felt, and ende

his discourse by citing the famous aphorism of Hippocrates that an operation should be carried out with prudence, rapidity, and ease.

At a meeting held by the Medical Society of the Hospitals, Dr. Lannois, who is one of the best known physicians of the younger generation of doctors, introduced to the society a patient having aortic insufficiency with a diastolic murmur which could be heard at a distance of twenty to twenty-five centimeters from the chest. The patient had had syphilis, and had experienced pain in the region of the heart for several years, when suddenly in October last he experienced a severe pain in his chest. He lost consciousness, fell, and since then he could distinctly hear this sound. Dr. Lannois has already published the report of a similar case where there was found to be a rupture of an aortic valve.

Cytodiagnosis as a means of recognizing progressive general paralysis has been tried in Paris by Babinski and by Leglas. Babinski carried out experiments in 120 cases, and on examining the cephalorachidian liquid he found lymphocytosis in organic affections of the nervous system resulting from syphilis, such as tabes and progressive general paralysis. This symptom is precocious and exists in all cases where Argyll-Robertson's sign is to be found, even when no other symptom is present. In all other nervous affections, non-dependent on syphilis, no lymphocytosis was found with the exception of tuberculous meningitis. Such diseases as polyneuritis, cerebral tumors, hemiplegia, paraplegia, chorea, sciatica, and myopathy gave no indication of an increase in the number of lymphocytes. Dr. Babinski cited a case where neurasthenia or progressive general paralysis was suspected. Cytodiagnosis indicates lymphocytosis, and so Dr. Babinski considers it probable that the case is one of progressive general paralysis.

A recent thesis by Dr. Claverie indicates the ideas of Dr. Doléris, maternity surgeon of the Boucicaut Hospital, on the use of surgical abortion as an urgency operation. In this operation, as recommended by Dr. Doléris, dilatation is produced with Hegar's dilators, the uterus is cleaned out with pincers and the curette, and then Doléris's écouvillon is used; finally the cavity is washed out and drained with gauze. Chloroform is not found necessary. The following are contraindications for this operation: severe case of heart disease, repeated uterine hemorrhage (three cases), intense vomiting (nine cases), tuberculosis (one case), and eclampsia (one case).

The discussion between Dr. Tuffier and Professor Reclus is not yet over. At a recent meeting of the Society of Surgery Dr. Tuffier read a long article on medullary cocainization, in which he endeavored to demonstrate the relative harmlessness of the method. In the first part of his speech Dr. Tuffier addressed himself directly to Professor Reclus, and reminded him that he was a former pupil of Reclus, and that therefore what Dr. Reclus had said about his technique would have been personal arguments coming from any one else. He went on to say that Dr. Reclus had accused him wrongly of not indicating in his work on the subject the serious accidents to be attributed to cocainization, whereas he had clearly indicated the different pathological symptoms that could be observed, and he had cited six times his unique case of death, with the result that an American author had given him six mortal cases. Dr. Tuffier considered it unjust to dispossess Corning of the place he occupies. Corning injected the cocaine under the dura mater, and that is what is done nowadays. Dr. Tuffier reproached Professor Reclus with having tried to demonstrate that he (Tuffier) had discovered no essential part of his technique. Dr. Tuffier remarked that Dr. Reclus was in the wrong and that he would convince no one. Even in Germany the method is known under the name of the Bier-Tuffier method, and Dr. Tuffier exhorted his French colleague to be as just as the Germans are.

Dr. Tuffier considers it advisable to use a solution sterilized by Tyndall's method, as experiments made recently show that when heated to 120° there is a slight alteration of the alkaloid, without importance when cocaine is injected directly under the skin, but becoming dangerous when an action on the medulla is to be obtained. He prefers to use a needle containing no mandrin, as one can more readily recognize when the dural space has been opened—by some liquid coming out at that time. If the liquid does not come out, it is well to push a drop of the solution through the needle, and then remove the syringe. Some of the liquid will escape after this.

Dr. Tuffier tried to give an explanation of the reason why anesthesia is not always obtained. He had had a patient injected by

his interne, and there was no result. He tried again in the evening, and the result was perfect. Dr. Tuffier had the same experience with this patient a few days after, and he considers it is due to the fact that when the syringe is adapted to the needle, if the left hand is not firmly held against the back of the patient the needle may be drawn out slightly and the injection will not be made into the subdural space. Dr. Tuffier examined again the different fatal cases already cited, and declared that he would accept none when an autopsy had not been performed. As for the indications for its use, they were to be found in the following cases: patients suffering from pulmonary, renal, or cardiac troubles; operations on the lower limbs, on the genitalia, and on the urinary tract. Simple abdominal operations can also be readily carried out, but when complications are feared, and vomiting may disturb the operator, it is well to use general narcosis. Certain operations on the lungs may also be performed with the aid of medullary cocainization.

Dr. Thiriar, professor of clinical surgery at the University of Brussels, has been trying a new treatment of boils and carbuncles by the use of oxygen. The apparatus used consists in a receptacle containing the gas at a pressure of several atmospheres, a rubber tube, and a Pravaz needle. The latter is inserted into the boil, but before doing so it is well to try the apparatus, so as to regulate the quantity of oxygen which escapes. Only one injection into the base of the tumor is found necessary in the treatment of boils. If it has already maturated, oxygen should be injected into the core. With a carbuncle four to six injections should be made around the tumor, and also through the openings of the core. According to Dr. Thiriar it is surprising how quickly a change takes place; the pain diminishes very rapidly, and the next day there is a noticeable change in the condition of the boil. In a few days cicatrization takes place.

The yearly excursion to the French mineral waters which has been established by Professor Landouzy and Dr. Carron de la Carrière will take place in the first days of September and will include some of the most interesting scenery in France, such as la Grande Chartreuse in Savoy, Uriage, Allevard, Brides, Aix, Divonne, St. Gervais, Chamounix, Evian. Professor Landouzy will as usual make a discourse at each place on the character and uses of the waters.

At a meeting held by the Academy of Medicine on the 25th of June, Dr. Fleury made a report on the variations of dynamometric pressure in neurasthenic patients. Some of them show signs of hypotension, and their arterial pressure increases under the influence of rest and treatment. Others suffer from hypertension; they are already under some toxemic influence, such as gout, uremia, alcoholism, diabetes; and they are cured not by rest and tonic agents, but rather by physical exercise, lactovegetarian regimen, and diuretics. These facts should be borne in mind when making out a treatment for neurasthenic patients.

Dr. Destrée, of Brussels, recently gave a description to the Society of Therapeutics of the uses of agarinè, a new salt containing theobromine and acetate of soda. Only 25 to 50 centigrammes is found necessary to produce diuresis. This salt is not caustic, and it has the advantage of being more soluble than theobromine. At the same meeting of the Society of Therapeutics Professor Huchard, who is a specialist in heart affections, said that there were three varieties of vascular hypertension: (1) Arterial hypertension which is seen in arteriosclerosis, and is a good premonitory symptom. The treatment consists in the use of milk and vegetables, massage, veratrum, trinitrine, and perhaps the use of organic substances, such as extract of thymus. (2) Pulmonary hypertension, which is observed in mitral stenosis and leads to arrhythmia in some cases. (3) Portal hypertension, in which milk, vegetables, and massage are indicated. Dr. Dalché remarked that arterial hypertension, when observed at the change of life, is often improved by ovarian medication.

Dr. Aviragnet, who is a physician of the Paris hospitals and a specialist in children's diseases, has written an essay recently on the treatment of scarlet fever, from which the following facts are worth gleaning. The child should of course be kept indoors so long as desquamation takes place (thirty to forty days), a complete milk diet is advisable to prevent nephritis, preferably for a whole month, and the water should be examined daily. Great care should be taken to keep the skin clean, and daily baths are useful on that account. When desquamation sets in, antiseptic inunctions should be employed, either boracic or carbolic vaselin being used. The nasal cavities should be

seen to, either of the following being used:

Vaselin, 30 grammes;
Boric acid, 4 grammes;
Menthol, 0.20 centigramme.

Or,

Vaselin, 30 grammes;
Resorcin, 0.30 centigramme.

Injections of olive oil and menthol 1 in 50, or preferably resorcin and oil, may be employed:

Sterilized olive oil, 20 grammes;
Resorcin, 1 gramme;
Mint essence, 2 drops.

Half a cubic centimeter in each nostril morning and evening (Marfan).

The throat should also be cleansed by repeated injections of boiled water, alone or with boric acid or naphthol. When any complications are feared, the tonsils and pharynx should be swabbed with a solution containing borax, salicylic acid, or resorcin.

MALARIAL HEMATURIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Malarial hematuria is undoubtedly due to a predisposing cause, a chronic malarial toxemia; the blood-vessels are weak, the liver congested, the portal system engorged, the biliary acids are in the blood, the circulation is weak, and there is a beginning disintegration of red corpuscles. While in that condition give a few doses of quinine or any alkaloid of the cinchona bark, and they will act as an exciting cause by creating a hemorrhage of the kidney in their elimination. The tubes become filled with blood, and as a result you have hematuria. The quinine intoxication is responsible for hematuria in malarial fever. Naturally, when the kidneys become filled with blood and the above pathological conditions due to malaria are manifest, you have retained urea, retained biliary acids in the blood, etc., and as a consequence you have cholesteremic jaundice, which overwhelms the sympathetic system and accounts for the sudden rise and fall of temperature. There is coagulated blood in the uriniferous tubules, complete suppression of urine, then uremia and death. In a few words this is the pathology and causation of the bugbear, malarial hematuria. I have treated some two hundred cases and have never seen a case but that had taken, in some form, a dose of quinine while the system was suffering from a chronic malarial toxemia. I have seen it when there had been previously no fever, but simple suffering from malarial neuralgia, and upon taking a thorough calomel purge, followed by a course of quinine, the characteristic chill and fever and bloody urine would come to last a few hours, and upon a repetition of the quinine, the chill, fever, and hematuria would return with a vengeance.

After cessation of treatment on the third day the symptoms would not reappear. I have seen its worst type in remittent fever, when patients were taking from 30 to 40 grains of quinine in twenty-four hours. I have seen it in patients who had taken but one grain of quinine, and I have seen whole families in a malarial locality who commonly had hematuria after taking never so little quinine, even when without any fever.

Now, in outlining a treatment I would like to assert that most of the cases which die generally die as a result of suppression of urine. Naturally, when the uriniferous tubules are filled with blood and the kidney is not kept acting, coagulation will soon set in, and mechanical suppression develops which nothing can reach, and death must follow. The first and most important thing is to treat the patient very early before the coagulation sets in, and the best remedy yet found in the spirit of turpentine. Fill five-minim capsules with turpentine, and give one every four hours. Then open the bowels with a good calomel purge, so as to relieve the portal system, and follow by a Seidlitz powder every four hours, which will relieve the retching, vomiting, and hiccough. Give Fowler's solution, two drops every four hours, and manage this so as to give each alternately, and in the meantime give milk, cracked ice, and plenty of water. If the fever is great, continue the turpentine until the urine smells of it and is cleared up, and then substitute for it the tincture of the chloride of iron, two drops every four hours, and continue this treatment until the skin clears up. Diffusible stimulants are indicated when the heart is overwhelmed and overworked in trying to rid the system of the poisonous principles. Under no condition shall quinine be given. If it is used a recurrence of the attack will shortly follow. I know that the medical profession is divided as to the quinine treatment, and to my own sorrow I have had experience with it, and my conclusion leads me to believe that quinine is an exciting cause of the malady, while malaria is the predisposing cause.

Yours truly,

C. M. MENVILLE, M.D.

HOUMA, LOUISIANA.

—THE—

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Original Communications.

*LESSONS OF A DECADE IN HYDROTHERAPY.**

BY SIMON BARUCH, M.D.,
New York.

Some thirty years ago, while engaged in studying medical history, my youthful and impressionable mind was startled by the discovery that the most renowned physicians were, with few exceptions, followers of the Hippocratic *vis medicatrix naturae* doctrine, and that this therapeutic doctrine included reliance upon water as a remedial agent. Indeed, Hippocrates entertained a more correct estimate of the action of water in diseases than does the average practitioner of this enlightened era. He taught that cold water stimulates; while the modern physician appears to believe that cold water shocks—*i. e.*, depresses. My respect for this remedial agent, of which I had known almost nothing, was aroused by reading that in ancient times men like Celsus, Cœlius, Aurelianus, Antonius Musa,

*Read before the Philadelphia County Medical Society, May 8, 1901.

Paulus Aegineta, Asclepiades, the medical advisers of emperors, poets, and philosophers, were active and even enthusiastic believers in it, while centuries later Vander Heyden, Hufeland, Huxham, Cheyne, Magendie, Charcot, Dujardin-Beaumetz, Niemeyer, Traube, Leyden, Erb, Nothnagel, Ziemmessen, Krafft-Ebing had advocated hydrotherapy with more or less warmth and earnestness. Indeed, the history of medicine would show that the estimate of its value rose and fell with the rise and decadence of knowledge.

About six years ago a symposium discussed in the New York Academy of Medicine the stability of remedial agents. Being called upon to discuss it from the standpoint of the general practitioner, I directed attention to the historical fact that of all the remedial agents applied in the days of Hippocrates only two are to-day used in active practice, viz., regimen and water.

Why has water survived the vicissitudes and changes of medical practice of two thousand years? The fate of the most universal and longest enduring remedy—venesection—furnishes the answer. It could not bear the searchlights of modern physiology and pathology. The action of water on the contrary is based upon rational principles—upon a physiologic basis, which becomes more and more evident as our insight into the nature and course of diseased processes is made more clear by modern investigation. We know to-day that hydrotherapy is but the application of temperatures through the medium of water which by reason of its physical property absorbs and gives off temperatures very readily. Cold and heat are irritants, which act as physiologic stimulants when mild, and which are depressant to the point of destruction when intense. By judiciously arousing these well known effects in the sensory terminals and vascular area of the skin a peripheral stimulation is evoked which like all such effects is conveyed to the central nervous system and reflected upon the life-sustaining organs. We increase the intensity of this response by increasing the intensity of the peripheral irritation, judiciously adapted to the individual case. This is the principle of hydrotherapy in brief. Therapeutic effects are evoked by peripheral irritation through cold and heat applied with water. Indeed, I am not overestimating the case when I say that just as sound may be elicited by touching the keys of a piano, so may therapeutic effects be elicited by touching the sensory terminals with cold and heat. And just as the trained musician elicits those harmonious sounds called music by his skilful touch, so may the trained physician elicit harmonious and powerful therapeutic effects by the skilful irritation of the sensory terminals by various hydriatric procedures. In accordance with physiological laws this peripheral irritation or stimulus produced by cold and hot water is transmitted through sensory tracts to the central and sympathetic systems and reflected by motor tracts to all parts of the organism. Here, then, is the simplest rationale of hydrotherapy. It explains the soothing effect of a warm bath, the stimulating effect of cold dashes in asphyxia and syncope, the awakening effect of the cold douche in narcotism, the vivifying effect of the cold bath in fever lethargy, as clearly as the invigoration of hypochondriac neurasthenics by similar procedures.

Why has the medical profession been so hesitating in the recognition of hydrotherapy? Among several reasons let me advert to one which is rarely mentioned. Hydrotherapy has erroneously been too often regarded as a cold water method, and shock from cold water has like a dread spectre affrighted doctor and patient alike, imbuing the one with doubt and the other with fear. Often has my suggestion of a cold bath been met with the anxious query from the attending physician, "Will it not be too great a shock to the tottering heart?" This is the result of faulty teaching. Shock is "a depression of the vital powers." If cold produces such depression why are we taught to dip an asphyxiated infant into cold water and to bathe a frost-bitten foot with cold water and to apply a cold douche to the narcotized? The truth is, as Hippocrates taught two thousand years ago, cold water stimulates when judiciously applied. If instead of bathing a fever patient in water at 70° with constant friction we placed him in water of much lower temperature without friction shock would be produced, the heart would indeed be endangered; if instead of rubbing the frozen limb with snow or cold water we wrapped it in snow or ice, necrosis would indeed ensue; if instead of alternately dipping the atelectatic infant rapidly into hot and cold water, we submerged its body into the latter, shock and death would result. These are such self-evident propositions that it would be an insult to your intelligence to mention them were they not con-

stantly lost sight of and did I not often meet instances which force me to bring them to the attention of otherwise intelligent colleagues. Moreover, many text-books are flagrantly deficient on this point, as witnessed by the following verbatim extract from one of the most prominent published in 1898: "Another way of applying cold is to put the patient in a cold bath and *leave him there for a certain time.* In the new pharmacopœia of the hospital the cold bath is stated to be water at 65° or reduced by the gradual addition of ice to 40° F. or below. Now the cold bath is a very efficient means of reducing temperature." After directing his hearers to watch the mouth temperature, which, by the way, is fallacious during the cold bath, this lecturer warns that "the temperature of the body may fall so low that the patient may become collapsed and even die." Administered in this improper manner, cold water is certainly to be feared as a two-edged sword.

It is the great virtue of hydrotherapy that it admits of the application of cold and heat from the mildest form upward, as is evidenced in daily practice, from the brief sprinkling of the face in syncope to the more or less prolonged submersion of the entire body in typhoid fever; from the simple mopping with a wet wash cloth to the douche of forty pounds pressure. This brings me to call your attention to the manner of grading or dosing the external application of water. Here we have great latitude, because there are three elements of dosage at our disposal which may be used alone or in combination, viz., the (1) duration, (2) temperature, and (3) pressure. To illustrate:

1. Dip one hand into water at 40° and remove it quickly; the result will be a tingling sensation followed by reaction. Submerge the other hand into the same water for ten minutes, if so long a dip can be borne; the result will be pain, chilling, cyanosis of the skin, and no reaction, unless assisted by friction. The former is a stimulating effect, the latter a depressing one, entirely due to the duration of the procedure. This simple experiment demonstrates that by duration we may grade the effect of cold applications.

2. The safe limits of temperature in the external use of water are 40° to 110° F.—an enormous latitude when we consider the different effects that may be elicited by every five or ten degrees increase or diminution of temperature.

3. The pressure under which water may be applied also affords latitude in the production of effects. Place a person quietly into a tub of water at 60° for several minutes and he will shiver and become depressed. Place the same person in front of a douche of 60° and twenty-five pounds pressure and he will feel stimulated by the application. Every addition or diminution of five pounds pressure produces a different effect.

We have no such latitude in the dosing of medicinal agents. This is a potent reason for better instruction on this subject in our schools, and so long as the latter is lacking, for physicians informing themselves in works on hydrotherapy rather than entrusting this important matter to nurses and masseurs whose claims are usually in inverse proportion to their knowledge.

There are many reliable experiments on record to explain the rationale of the action of water in disease. My time is too limited to enter fully into them. A few examples may suffice to demonstrate that there is no remedial agent whose action is more readily explained. That the circulation of the blood, for instance, is under complete control of hydriatric procedures was clearly shown by Max Schüller's experiment of trephining a rabbit so as to expose the vessels in the pia mater. When the animal was placed into a tub of cold water, the pial vessels dilated, the brain protruded and pulsated actively; when the animal was placed into warm water, the pial vessels contracted, the brain sank, and the rabbit became drowsy. Thus was shown the power we wield of producing anemia or hyperemia by the application of cold and heat. The effect of hydriatric procedure upon the composition of the blood has been demonstrated by Winternitz, Rhovigi, Thayer, Breitenstein, Loewy, myself, and others. Cold applications produce great increase of red and white cells in blood taken from parts not subjected to the cold, as the lobe of the ear, showing that this increase is attributable to the great fluxion produced by which cells floating sluggishly in outlying districts are drawn into the general current.

Hydrotherapy in Acute Diseases.—The immediate and remote effects of cold procedures in acute diseases are explicable upon a rational basis. Unfortunately many physicians otherwise well informed still ex-

plain its action upon an antipyretic basis—a fallacy which I have for ten years been endeavoring to remove.

The idea does not appear to have percolated through the medical masses that the antipyretic is secondary to the nerve stimulating effect of the cold water. Fear of the so-called shock has, as I have stated, long operated against the adoption of effective cold procedures, because of this erroneous antithermic idea. Physicians have been taught to increase the dose of castor oil, morphine, or other medicine if they desired an intensified effect; hence they naturally order the cold bath made colder when the temperature does not yield. As a result they obtain depression from injudicious dosage, and they reject a remedy which judiciously used would produce quite different effects. The cold bath, indeed every cold procedure, has for its chief object the enhancement of the resisting capacity of the patient to the disease. In an acute disease like typhoid fever this is accomplished, first, by the well known primary effect of cold in contracting the cutaneous vessels. This is followed by reaction which is manifested by a tonic dilatation of the vessels, whose walls had previously been in a semiparetic state by reason of the prevailing toxemia. The heart is thus materially aided in its labor to overcome the unresponsive condition of the peripheral vessels. Heart failure, which stands as a spectre at the bedside of every case of infectious fever, is not due so much to enfeeblement of the cardiac muscle by hyperpyrexia as to the imperfect action of the peripheral vessels, which allow the blood to glide through them without resistance or with greatly diminished resistance. Cold water applied with friction stimulates the cutaneous arterioles to a more nearly normal action. As has been well said by your own Hare, like sanding the track for an ineffectively laboring locomotive, cold water increases peripheral resistance and enables the heart to renew its vasomotor tone. Arterial tension is increased, the danger of failure of the laboring heart is overcome, mortality is decreased because an improved circulation forestalls many lethal complications.

The excitation of the terminal sensory filaments in the skin which follows the repeated impact of cold water is rapidly conveyed to the central nervous system, and thence reflected upon the life-maintaining organs whose functions have been more or less impaired by the existing toxemia. Each bath or other cold procedure gives a fillip to the depreciated nerve centers and sends new life to the organs depending upon them. The whole machinery of the organism receives a refreshing impetus, the impression being more or less enduring according to the temperature, duration, and procedure to which the patient is subjected. Whoever has witnessed the dull eye of a typhoid patient brighten after the cold friction bath; whoever has felt the dicrotic galloping pulse gain in force and diminish in frequency, the deadly pallor of the trunk and cyanotic face disappear; whoever has noted the enormous increase in quantity and toxicity of the urine; whoever has observed how the previously restless, unhappy patient falls into gentle slumber after a properly administered cold bath, must be convinced that he stands in the presence of a powerful and salutary agent, the like of which does not exist in medicine. Indeed, it is not an inapt simile to say that just as the vegetable organism famishing under a torrid summer sun is revived by a cooling shower, so is the human organism prostrated by fever vivified by cold friction baths. In order to insure this much desired result, however, reaction must follow the cold baths; otherwise it fails. This salutary effect can be produced only when the temperature of the water and the duration of the procedure are adapted to the indications of the case and the reactive capacity of the patient. The following scheme of don'ts affords a summary of what to do and what to avoid in the application of cold water in febrile diseases. I have adopted them as guides in the hydriatric management of fevers:

Don't bathe with cold water to reduce temperature, but to refresh the fever-stricken patient.

Don't permit cyanosis or chattering of teeth; stop.

Don't stop bathing because patient complains of chilliness, unless the teeth chatter.

Don't raise bath temperature on the latter account; shorten bath and increase friction.

Don't neglect friction during every cold procedure; it prevents chilling.

Don't disregard the well ascertained fact that the Brand bath (of 65° to 70° F. every three hours when awake, with active friction) is the ideal bath for typhoid fever only.

Don't use the Brand bath in a bath-room.

Don't give up cold bathing because the

ideal bath is not obtainable; other procedures are useful.

Don't use the ice coil to the abdomen; it has no refreshing effect and renders the skin beneath it cyanotic.

Don't lose sight of the fact that the chief aim of all cold procedures is reaction.

Hydrotherapy in Chronic Diseases.—The rationale of the action of cold water in chronic diseases is also explicable on physiological principles. The stimulating effect of water ten or more degrees below the body temperature upon the cutaneous sensory terminals is transmitted, as in acute diseases, to the central nervous system. The inspiration is deepened by reflex action through the vagus, the heart action is improved through increased resistance of the contracted arterioles, and they are afterward dilated in tonic fashion, showing a reaction denoting the passage of larger quantities of blood through them; an increase of hemoglobin and blood cells in the cutaneous blood has been often demonstrated after cold procedures; more blood cells are therefore driven through the lungs also. The exposure of a large number of blood cells to the air enhances oxygenation materially and renders cold procedures followed by reaction the best hemoglobin producers. When these cold procedures, be they ablutions, drip sheets, packs, or douches—the latter are the most useful—are repeated daily or oftener, the skin receives a neurovascular training, the refreshing and invigorating effect of which is felt throughout the entire system. Even in health the man who indulges in the cold morning tub testifies by the ruddy appearance of his face, his pink nails, and his general vigor to the fact that he has put his cutaneous vessels and nerves through a course of training similar to that which the athlete obtains for his muscular development as the result of his daily muscular training. We must be governed by the same principles in the management of chronic diseases as in acute diseases. During the past decade the use of water in hitherto intractable chronic diseases has led me to greater confidence in this simple agent, and to its increased application in the scheme of management.

It is proposed to illustrate this statement by a few examples:

Phthisis.—Of all chronic diseases phthisis pulmonalis is probably the most prevalent and the most destructive. The method now universally adopted, and which I emphasized ten years ago (*Transactions of the New York State Medical Society*), for the management of these forlorn cases, combines the open air, dietetic, and water treatment. This method was devised by Brehmer, the father of modern phthisis management. In his book, Die Therapie der Chronischen Schwindsucht, he dwells with strong emphasis upon the value of hydrotherapy in phthisis. And in accordance with his suggestion and his example in the great sanatorium constructed by him at Goerbersdorf, every institution of note follows his advice. I have personally inspected many of these, among them the model institution at Ruppertshein and Dettweiler's sanatorium at Falkenstein, also Roempler's and Brehmer's at Goerbersdorf, and found a douche apparatus in each. A recent excellent and complete article by Dr. J. H. Kellogg (*Medical News*, November, 1900) epitomizes the utility of water in this disease as follows: "It is my firm belief that the general adoption of hydriatric measures in the treatment of pulmonary tuberculosis by the profession at large, and especially the application of these measures to the disease in its incipient stages, would result in saving at least nine-tenths of the sufferers from this disease from the untimely death to which almost every one is doomed under ordinary medical management." The opinion of this able and many-sided physician is fully indorsed by that most successful prize essayist on pulmonary tuberculosis, Dr. Knopf, who opens an able chapter on hydrotherapeutics of this disease with the statement that "after aërotherapy, hydrotherapy comes next in importance in the treatment of pulmonary tuberculosis." And these opinions I have amply verified. Even when patients have found it impossible to leave their homes for a more favorable clime, I have seen in private and hospital practice in New York City results in preventing the development and checking the progress of this usually progressive malady which have convinced me of the substantial value of judicious hydrotherapy. The results are directly traceable to the powerful influence of the external application of water with friction at a temperature five to ten degrees below that of the patient. The gradual neurovascular training thus produced awakens appetite, nutrition, hematosis, and constructive metabolism in such a manner that the blood is rendered capable of resist-

ing the effects of the bacillus tuberculosis upon the patient's vitality.

Clinical examples are abundant. I have selected one brief history because it is a case of long-standing proof:

Mr. S., aged twenty-six years, merchant, living in the south, was on a visit to friends in the summer of 1892. He consulted me at Long Branch on July 29, 1892. He was pale, emaciated, and had been losing flesh and coughing several months. Had no appetite. Temperature 101°, pulse 120. Dull note was present over left supraclavicular space; respiratory murmur harsh, expiration prolonged. He was put to bed for a few days until he showed a temperature of 99° on July 31. He was then sent to the Hydriatric Institute for water treatment. His sputum contained tubercle bacilli. He weighed 106 pounds. A hot-air bath to improve the peripheral circulation and enhance his reaction was ordered. This was followed by the circular douche of 95° reduced gradually to 80° for forty seconds, under ten pounds pressure, gradually increased to twenty pounds. This was followed by the fan douche at fifteen pounds pressure, gradually raised to thirty pounds for a few seconds at 70°. An eminent specialist pronounced him phthisical, and cautioned him earnestly to leave the city, saying that he could not live in this climate. Regarding his chances as far better under systematic hydrotherapy than under the climatic change recommended, I counseled him to remain in the city, and the result happily justified this advice. One month after beginning treatment he was able to take water at 70°, with brief sprays even at 40°. He had gained seven and one-half pounds. Appetite was excellent; cough still troublesome, because of tuberculous laryngitis. The spray temperature was diminished, so that on the 19th of September it was only 64°. Bacilli were still present.

On January 9, 1893, Dr. Freudenthal, who treated his larynx, wrote: "Patient looks and feels much better, has gained ten pounds. Ulcerations have healed under lactic acid and 20-per-cent menthol. The improvement in the case is remarkable."

On January 21, six months after beginning treatment, he had gained sixteen pounds, weighed five pounds more than in health, and Dr. Van Giessen reported that no tubercle bacilli could be found.

A return of his symptoms five years later caused him to go to a sanatorium in the Black Forest, whence he returned in good health. The patient is still living in this city, and with the exception of a laryngeal irritation is well and able to pursue his avocation.

Institution treatment is not necessarily required. Every home has sufficient facilities for the application of some form of air and water treatment. If the principles governing the latter are understood and the unfounded fear of shock is thus removed, very cold water may be used with great advantage in building up the vital resistance.

Neurasthenia.—Another trying if less fatal disease, which offers a fruitful field for hydrotherapy, is neurasthenia. Mild forms yield readily to removal from unfavorable environment, improvement of diet, habits, exercise, rest, etc. In the more obstinate forms, when all these have been tried without result, the addition of some form of hydrotherapy almost invariably changes the entire aspect of the case. In this age of restive striving after wealth and fame and social distinction, neurasthenia has become one of the most common maladies, so that every physician in active practice has one or more of these unsatisfactory cases almost always on his list. It has become the fashion to accept the novel combinations of so-called nervines, nerve tonics, tissue-builders, hypnotics, analgesics, which the busy chemist evolves for the enterprising manufacturer, who in turn sends his polite purveyors and agents to the doctor's office to solicit their application through gratuitous samples. I see many cases that have gone the rounds of all these modern nerve restorers in vain. I see few cases in which any kind of methodical hydrotherapy has been applied. Some may have received directions to sponge with cold water or to plunge into a cold tub, without any definite prescriptions of temperature or duration, so that when water is prescribed by myself they raise the objection that they can't bear cold water; it always disagrees, shocks them, weakens them, etc. And yet of all remedial agents that are advised in the best works and essays on neurasthenia, the methodical application of water has been given the palm by men like Eulenberg, Jolly, Strümpell, Krafft-Ebing, Erb, and in our country by Peterson, Putnam of Harvard, and Collins.

The neglect of hydrotherapy by the average practitioner and even by many neurolo-

gists may account for the sad fact that we hear of so many neurasthenics wandering from one doctor's office to another and sooner or later becoming the prey of charlatans and Christian scientists. These patients present every phase of depreciated vascular and nerve condition. Some of them present the appearance of health, many look wan and worn from loss of appetite and sleep, digestion is impaired, introspection renders them and all around them miserable. Some have been benefited by treatment, rest-cure, change of air and scene; but on their return to an unfavorable environment all the old symptoms gradually but surely return. Again they totter on the brink of invalidism, some give up in despair, believing their reason threatened, others insist that their memory is impaired; others become the prey of morbid fancies—agoraphobia, nosophobia, insomnia-phobia (if I may coin a word). They become the despair of family, friends, and physicians.

What prospect is there for such cases? I may say from actual observation that in a large proportion, if there be no organic basis nor positive hereditary predisposition to insanity, the result of a methodical course of hydrotherapy in connection with properly adjusted diet and environment will prove a revelation. The most useful procedures are the dry pack, which consists of a snug wrapping of the patient in heavy woolen blankets for about an hour, so as to accumulate heat; successive parts of the trunk are then uncovered and treated to a rapid and brisk rubbing with a bath glove or wash-rag saturated in and squeezed out of water at 85°. After drying and good friction the patient is sent into the air for gentle exercise. Every day the packs and wet rubbing are repeated, the water temperature being reduced two or more degrees daily until 60° is reached. The patient's reactive capacity having been trained by these daily neurovascular gymnastics, he is subjected to more decided hydriatric procedures. Standing in water at 100° in a warm bath-room, the patient may be subjected to affusions. From a foot-tub containing water at 80°, which may be daily reduced two or more degrees until 60° is reached, water is dipped with a long-handled basin or large tin dipper, and thrown with force upon the upper back, and successively over each shoulder and anterior part of the body. If this be done rapidly, followed by rapid drying, dressing, and exercise the patient will not become chilly. Every day larger quantities of water may be used, always avoiding chattering of teeth and cyanosis, but not desisting because the patient complains of feeling cold or chilly. These and other home procedures, applied with due regard to the patient's reactive capacity and as carefully supervised by the physician as he would supervise the administration of any powerful medicinal agent, will bring relief and perhaps entire recovery in a large proportion of cases. If, however, skilled nurses cannot be obtained or home treatment is otherwise inconvenient or difficult, or if this domestic treatment has not been successful, a systematic course of douches, which may now be obtained without making the patient an inmate of a sanitarium, will prove satisfactory in many apparently hopeless cases. The thermic and mechanical stimuli involved in douches delivered from an easily graded apparatus are capable of arousing depreciated neurons, enhancing vascular activity in the brain, and improving general and local nutrition. The cortical centers, which are the focus of failure in these depressed neurasthenics, feel the impulse of the better circulation and nutrition, and are restored to the normal controlling influence from which the etiological factor involved in the case had deposed them. Morbid ideas and illusions vanish, introspection ceases, the patient slowly but surely regains his neurovascular equilibrium. Moreover, these results obtained under judicious hydrotherapy are far more enduring than those following other methods alone.

Eight years ago I was asked by Dr. Ralph Waldo to see a middle-aged lady, mother of several children, on whom the doctor had done a successful perineorrhaphy and trachelorrhaphy. Although these operations restored the normal relations and size of the uterus, they failed in restoring the patient's health. She continued to be an invalid, and nothing could induce her to leave the bed. She insisted upon having her uterus, which she regarded as the cause of her invalidism, removed. The late Dr. Charles Carroll Lee was called in, and agreed with Dr. Waldo that there was no indication for operative procedures, and suggested that hydrotherapy might arouse the patient from her uterophobia. I visited the patient with Dr. Waldo in her suburban home and advised a systematic course of hydrotherapy. With great difficulty she was brought to the city and entered an in-

stitution, being practically carried by her husband and brother from the carriage to the room. Without going into detail I may say that she was a pronounced type of melancholic neurasthenia. Her reaction was very feeble; she was gradually trained to accept colder water and large quantities by ablution, affusions, and half baths, and later she received a systematic course of douches which restored her vitality completely, so that after six months' treatment she was anxious to use the bicycle. With some directions for a careful daily cold plunge she was discharged cured, and had remained well up to my last information.

I hope Drs. Wharton Sinkler, James C. Wilson, and H. A. Hare may relate the clinical histories of cases kindly referred by them for hydrotherapy, cases which had resisted the most skilful management and which yielded to systematic hydrotherapy.

Diabetes is a malady which we are in the habit of treating in an empirical manner, with little hope of restoration to health. To diminish the entrance of sugar-producing foods into the system is the leading principle in the "treatment of this disease." That lives have been prolonged by strict attention to diet there is no doubt. But how great is the sacrifice of comfort and happiness these patients are too often called upon to make when following conscientiously the rigorous dietetic orders few physicians realize, unless they or some near member of their family be a subject of this malady.

Let me briefly advert to a method of managing the patient in this disease which has been rewarded with a success to which I had been a stranger during the first twenty-five years of my professional career, and in the scheme of which hydrotherapy enters very largely. Since I read the convincing physiological argument made years ago by Bouchardat and Frerichs in favor of systematic exercise in diabetes, I have endeavored to translate their reasoning into practice. In diabetes we know that the glycogenic function of the liver is in abeyance and greatly impaired, while the muscles, which also possess glycogenic function, fail by reason of the lassitude incident to this disease. There being no agent by means of which the glycogenic function of the liver can be enhanced, and the causes of the loss of this function being still obscure, there is nothing left but to limit the supply of sugar-producing element. We are, however, in a more favorable position with regard to increasing the functional activity of the muscles, and thus enhancing the well known sugar-converting function of their inner fibrillar substance. By increasing, therefore, the circulation in the muscles (the principal effect of exercise) we may enable the system to appropriate a large proportion of the sugar circulating in the blood, and thus prevent its loss to the system. Clinical experience is happily in entire accord with this deduction from physiological observations. The latter are not new, but their true import is unfortunately not recognized sufficiently to become part of a scheme in treatment. Diabetic patients are warned to live hygienic lives, to keep clean, and take plenty of exercise. The insufficiency of directing such a patient to exercise is soon made evident if he be kept under observation. He reports that he is unable to exercise much without great fatigue. Inasmuch as the latter is regarded as detrimental, less exercise is ordered and taken until it is abandoned altogether. It has long been my custom to insist upon regular and sustained exercise, by which alone muscular glycogenesis can be stimulated. This requires great moral courage and energy. So great are the languor and inertness of the patient that it is almost impossible to overcome this. And here is the point where hydrotherapy enters as an important remedial agent. That great physiologic stimulant, cold applied through the medium of water, especially when combined with the mechanical stimulation of the douche, arouses nerve activity, increases vital capacity, contracts muscular tissue, improves nutrition and hematosis, and thereby increases energy, removes languor and indisposition to exercise. When moral suasion has failed, and even the certain prospect of further invalidism has not stimulated the diabetic to effort, the systematic daily neurovascular training by the cold douche has often requited me by a renewal of life, a quickening of all the functions, an elevation of vital activity, which brought the patient to tolerate and even enjoy muscular exercise, without fatiguing him. Not alone do we thus obtain the salutary influence upon the muscular glycogenesis, but the improvement of the patient's general health contributes to the enhancement of his digestion, assimilation, and more normal excretions; weight is gained: the patient and friends are cheered. Such stimulating effect upon the nervous system in a disease which is so

largely neurotic conduces vastly to the restoration of health. It has been my frequent observation that strict rules of diet may be relaxed where systematic exercise, of which I insist upon having a record on the pedometer, and hydrotherapy are added to the management of diabetes. Here again we have a striking illustration of the fact that hydrotherapy, though not directly curative, aids in enhancing the resistance of the human organism to disease.

One brief clinical history of a case of long enduring restoration must suffice to illustrate my statements:

Mrs. S., aged sixty-five years, consulted me on March 2, 1892, for great lassitude, loss of appetite, depression of spirits, and other symptoms pointing to diabetes. Examination revealed six per cent of sugar, specific gravity 1040, quantity in twenty-four hours eighty-one ounces. Weighing nude 253 pounds, and being quite inert and languid, exercise seemed utterly out of the question. A strict antidiabetic diet was prescribed and rigidly adhered to, but she could not walk two blocks without dyspnea and great exhaustion. Despite the most laudable persistence in her efforts to carry out my instructions for one month she lost only one-half per cent of sugar. In order to reduce her weight and improve her nerve and muscle energy, she was induced to drive in a carriage five miles to receive the following treatment: Once a week she received a hot-air box bath until she perspired freely. This was followed by the circular douche at 90° for half a minute, and by the fan douche at 80°. This was succeeded by active massage and resisting movements for fifteen minutes. Five times a week she received a tonic hydriatric procedure (beginning with a dry pack for half an hour for the purpose of filling the cutaneous vessels, and followed by a general ablution at 70° with good friction). On April 15—*i. e.*, in two weeks—she had lost six pounds and was able to walk six blocks twice a day. A week later specific gravity of urine was five points less, sugar three-fourths per cent less. Wet packs in sheets wrung out of water at 50° were each given for forty-five minutes, followed by half baths of ten minutes at 85°, with active friction in tub, followed by massage and resisting movements for fifteen minutes. The object of this procedure was to increase tissue change and improve the circulation in the muscles. This effect was increased a month later by substituting the jet douche under thirty pounds pressure at 60° F. for the half bath. It was delightful to observe how this large and unwieldy woman gained in energy, desire and ability to walk, so that at the expiration of three months, despite the summer heat, she was able to walk four miles a day, morning and evening The diet remaining the same, sugar decreased gradually from the time she was able to walk a mile daily, until eight months after beginning treatment she was entirely free from sugar. She is still free from diabetes, although eight years have elapsed. Her diet is no longer strict, the only precaution being to resort to more muscular exercise when farinaceous food is indulged in.

If time permitted I should gladly dwell upon other chronic affections in which hydrotherapy has done signal service.

Cases of *nervous dyspepsia*, for instance, which had run the gamut from pepsin to the empirical hot water and Saulsbery steak, thence to the scientific gastrologists who base their treatment upon test-meal analyses, have been restored to health when the stomach was not regarded as a special organ, but as an integral part of the whole organism, and the nervous system which supplies the stomach with functionating capacity was refreshed and invigorated by daily neurovascular gymnastics with cold water. My case records are filled with such achievements.

In *hysteria*, whose pseudomanifestations so often strike terror into the hearts of families and drive the doctor to his wit's end, Charcot has signalized his greatest triumph with the spinal douche. Erb, Krafft-Ebing, and Charcot's successor in Salpêtrière have confirmed the paramount value of this special treatment. The records of the Montefiore Home as well as of my private practice have established the clinical fact that in the most obstinate and unpromising forms of hysteria the cold rain, fan, and jet douche carefully adapted to the case is often the last and best resource.

Obstinate cases of *neuralgia, sciatica, neuritis, lumbago*, and allied diseases are relieved and often removed by various hot applications, followed by cold douches. "Pain is the prayer of the nerve for better blood," said Romberg, and I know no means of enhancing hematosis like bringing the blood to the skin and pulmonary vesicles by judiciously adapted douches.

In spasmodic and bronchial *asthma* that

has resisted other treatment, marked improvement has followed under hydrotherapy. I have in mind a case in my own family which enjoyed the kindly and most skilful management from eminent colleagues, but the patient began to improve only after hydrotherapy was added. Affusions with water at 75° daily, reduced until 45° was reached, while the patient sat in shallow water at 100°, was the simple measure which proved the turning point in this most interesting case. The douche could not be obtained because the patient was at Long Branch.

For cardiac cases you are aware what hydrotherapy in the form of the Nauheim baths has done in restoring failing or lost compensation. In these cases the effect is produced by combining the chemical with the thermic peripheral irritant.

In angina pectoris, which is more often of the false than the true type, a systematic course of hydrotherapy has often served me well after other methods pursued faithfully by other colleagues and by myself had failed.

Another set of cases which are greatly benefited by hydrotherapy are those unsatisfactory rheumatic, gouty, and lithemic conditions which are the bane of the doctor's life and which we are often so glad to rid ourselves of by sending them to the hot springs. At these resorts many remarkable cures are effected by removal of the patient from unfavorable environment and by the judicious application of baths and douches under the direction of their skilful physicians. Unhappily, few of our patients are able to leave their homes for this purpose, and for these much may be done by methodical hydrotherapy at home. The course adopted at these springs may be usefully imitated wherever douches under pressure of twenty to thirty pounds can be had. This treatment stimulates the emunctories, especially when it is combined with the frequent and methodical drinking of ice water. Products of retrograde tissue change are eliminated, normal products are formed. Although the patient may lose flesh, his appetite, sleep, and general comfort are increased, and if the dietary and mode of life are properly regulated his health may be entirely restored. While we cannot approach the rapid and decided effects attained by our colleagues at the hot springs, to whom such cases should preferably be referred, great relief may be afforded and even complete restoration may be slowly attained by the hot douche and bath treatment at home.

In this type of patients I have often observed great relief and even complete restoration slowly obtained under the hot bath, douche, and massage treatment

Of failures in chronic diseases I have, alas! seen too many, especially in cases referred as a last resort by colleagues whose efforts would have been crowned with success in the earlier stages of disease.

The facts and deductions of this essay are the result of observations made upon over 100,000 recorded procedures in neurasthenia, hysteria, some of the psychoses, phthisis, gout, rheumatism, dyspepsia, cardiac diseases, sciatica and other neuralgias, obesity, and neuritis. The application of this method of treatment to such varied diseased conditions is rendered possible by its flexible nature, which enables us to adapt it by modifications of temperature, pressure, and duration, and by numerous technical details to the most varied pathological manifestations, provided the physician has mastered its rationale and mode of action and its details are not left to the judgment of bath-nurses.

By utilizing only institutions which are under medical supervision and direction, the physician may obtain all the valuable effects of hydrotherapy without subjecting the patient or himself to the dangers of empirical application, which has so often brought disaster to both and discredit to this remedial agent. If water is to occupy a lasting position among remedial agents, *it must remain in the hands of medical men entirely*, its theory and practice must be taught in our schools, and its application demonstrated in our hospitals, as is done in Vienna and Heidelberg. Only by this means will water be rescued from the hands of the empirics who, as Kussmaul has justly said, thrive upon it to the detriment of the educated practitioner.

In conclusion, let me urge that more attentive consideration be accorded to the therapeutic uses of water; that the principles upon which its action is based be mastered; that it be applied systematically and persistently; and that the causes of failure which will often be discovered in imperfect application be studied.

By recording hydriatric prescriptions, as is done with the medicinal and dietetic, case histories may be made to furnish data for future guidance.

Finally, I appeal to you to further the teaching of hydrotherapy in the medical schools.

If I have succeeded in arousing your interest in this ancient but neglected remedial agent I shall be content.

A CASE OF CARBOLIC ACID POISONING.

By Walter R. Griess, M.D.,
Cincinnati, Ohio.

I wish to report a case of carbolic acid poisoning in which an antidote was given which I do not believe is in common use for such cases.

A child, female, three years of age, took accidentally a quantity of carbolic acid, and was brought into the hospital. The child when seen was comatose, covered with cold perspiration, had a subnormal temperature, a weak pulse, and was frothing at the mouth. The corneal reflex was abolished, and the child certainly seemed moribund.

A catheter with glass funnel attached was used for a stomach pump. As the child was in a very dangerous condition, and in order to avoid death which might be caused by the shock of introducing the tube, a hypodermic injection of ether was given before the stomach was washed out with a solution of magnesium sulphate. Probably a quart and one-half of this solution was used; then a solution of whiskey 1 to 4 was employed as a wash and four ounces of this solution was allowed to remain in the stomach. The whiskey was given with the idea that the alcohol in it would counteract the carbolic acid (just as surgeons submerge their hands in alcohol after first using pure carbolic acid and no burn will result). It was found necessary to stimulate the child upon two occasions while this was being done, atropine gr. 1-200 and strychnine sulphate gr. 1-40 being given hypodermically. In a few hours the child became conscious, and then made an almost uninterrupted recovery. The tissues about the mouth were badly burnt, and this was the only mark present after a few days.

I have never seen any carbolic acid poisoning case recover from the ordinary treatment given when the patient's condition was such as in the reported case, but I have seen a great many cases die in which the ordinary treatment was given just as promptly, their general condition being not near so serious (when first seen) as in this case. So I think it is only fair that some credit be given the whiskey, and that the alcohol be considered the antidote which saved this life.

*THE CURE OF ENURESIS.**

By Philip F. Barbour, A.M., M.D.,
Professor of Diseases of Children, etc., Hospital College of Medicine, Louisville, Ky.

Wetting the bed is one of the lesser ailments of children that produces more discomfort than many more serious diseases. Enuresis is normal in the infant, and it is only as the child grows older and more intelligent that the discharge of urine ceases to be involuntary and comes under the control of the inhibitory centers in the brain.

The time at which the psychic centers become developed sufficiently to control the activity of the sphincters and inhibit the action of the detrusors varies with the inherited physical and mental qualities of the child, and also to some extent with the general intelligence and fitness of the nurse or mother. If, however, the child has not by the end of the second year learned to control the movements of its bowels and bladder some local disease may be present, or there is an undevelopable brain from porencephaly, imbecility, or allied nerve lesion.

It is not my purpose to devote much attention to obvious causes of bed-wetting; the causes where discoverable should if possible be removed. But the number of causes that have been adduced to account for enuresis is equaled only by the number of remedies which have been suggested for its relief. In the great majority of such cases, however, one is unable to discover any causal factor. The very fact that so many different conditions have been cited as producing enuresis, whereas the same conditions when present in other children do not produce it, should remove them from the group of exciting factors, though they may substantiate their claim to be numbered among the predisposing causes. Any predisposition should of course be counteracted, and that phase of our subject will receive brief attention.

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Cases of enuresis are those which usually without any assignable reason wet the bed at night.

The urine is offensive in odor and frequently alkaline in reaction. It stains the night garments or bedding brown, and rots the bedding very rapidly. It is not clear, but contains floating particles which under the microscope are of an indeterminable nature.

The bacteriology has not been worked out, though the offensive odor of the urine would indicate some abnormal change in it such as most frequently results from the growth of microorganisms. As the urine varies from a highly acid to a highly alkaline reaction, it is hardly possible that the same organism is present in all cases. Indeed, it is highly probable that there are a number of bacteria which may produce such changes in the urine as to render it highly irritant to the normal mucous membrane, and which thereby induce a sensitive condition of the bladder, which is suggested as one of the explanations of the phenomena of enuresis.

The great frequency of enuresis and the absence of any determinable cause in most cases have led us to infer that the most frequent cause has not been ascertained, and especially that it is not a neurosis only.

The inefficiency of the usual treatment in ameliorating this common disease has led many to strive in an empiric way to secure some more brilliant and certain results than have obtained under any of the drugs which have been advocated for it. A large outdoor clinic has furnished me with the opportunity of trying all drugs recommended for enuresis on a great number of cases, and the simple treatment which I have learned to rely upon has been gradually evolved and confirmed by most satisfactory results in over one hundred cases in private and clinical practice.

My predecessor in the Hospital College of Medicine, the late Dr. John A. Larrabee, was an earnest advocate of belladonna in all cases of enuresis, and I have records of over fifty cases treated by that drug. Belladonna has been highly lauded by all the eminent pediatricians of this country; they find it to be almost universally applicable. Some prefer atropine on account of the definite strength of the alkaloid, the exactness of the dose, and the certainty of its therapeutic action. My experience with it has not been favorable; it has to be used in such large, almost toxic, doses as to border on the danger line. The effects of such large doses are so unpleasant and often so alarming that many have been anxious to secure some drug which was less toxic and more effective. Holt recommends increasing the dose of atropine so that a child aged five may take one one-hundredth of a grain of atropine at 4, 7, and 10 P.M., and in a foot-note gives his experience as follows:

"Twelve obstinate cases, in none of which could any local cause be found, were treated by Dr. Kerley, then resident physician in the New York Infant Asylum, in the manner indicated. After five months seven of the cases were so much improved that incontinence rarely occurred. The atropine was, however, continued in smaller doses for four months longer, at the end of which time the cases were well. In the remaining five cases but little improvement was seen after five months' treatment, and not until the end of ten months could it be said that much improvement had occurred. In these cases the drug was continued for two months longer, and all treatment discontinued as the cases were cured."

Professor Holt very correctly adds that "in dispensary and private practice the want of early success would have deterred mothers from continuing the medicine."

Strychnine is indicated in those cases in which there is a general relaxed condition of the muscles, and it is of benefit by its systemic action. Ergot is sometimes combined with it when the sphincter of the bladder is too weak, but it will upset the digestion and is of little assistance.

To mention the other forms of medication very briefly: Iron in the form of syrupus ferri iodidi is of use in the anemic cases especially, as lymphatism is considered an etiological factor and adenoids are often present. General attention should be given to the diet and to the regulation of the intestinal digestion and peristalsis.

Such evident causes as worms, balanitis, phimosis, highly acid or too concentrated urine, vesical calculus, congenitally small bladder, should receive their appropriate treatment.

Punishment never does any good; though some believe in a form of suggestive therapeutics, it is difficult to understand how a child as sound asleep as these children usually are when they wet the bed can be affected mentally by suggestion or by threats of punishment. Raising the foot of

the bed by relieving the pressure upon the trigone of the bladder is sometimes of service. Rhus aromatica, epigea, cantharides, electricity, etc., have been lauded.

A child presented itself at my clinic in October, 1896, suffering from enuresis. The examination of the urine showed it to be unusually offensive, and alkaline in reaction. Desiring to acidify the urine and knowing that the usual organic acids would only increase the alkalinity, and that the mineral acids were very uncertain in their action upon the urine, I decided to use a saturated solution of boric acid, which has the property of making the urine acid.

The results in this case were gratifying, and also in the next few cases in which I tried it. For several months then we used belladonna only. During the summer and fall I again used the boric acid, but for the purpose of rendering the urine more antiseptic, salol was added to it. Salol is broken up in the intestines into salicylic and carbolic acids and is eliminated through the kidneys in the urine. The results from the combination were most gratifying, and the two have been used now for several years as the routine treatment for enuresis. I do not know any case in which it has failed after a thorough trial, and it has been employed not only by myself but by medical friends, who have uniformly reported most favorably upon its use.

Of course it would be useless as well as foolish to claim that enuresis from every cause could be cured by the combination of these simple drugs. It is very easy to see that an abnormally contracted bladder, anemia, malnutrition, etc., would not be cured or benefited by this treatment. I do feel, however, that my experience will warrant the assertion that with the usual attention to any of the evident factors in the case, and in those cases in which no organic lesion can be diagnosed, this simple treatment will prove satisfactory, and, in addition, it is practically void of danger and easy of administration, and can be continued for considerable lengths of time, if it should be found necessary and there are no diseased conditions in the kidney.

I use the word "cure" in the title of my paper to mean the relief and complete disappearance of the enuresis. I do not claim that there will not be relapses, though I have seen relapses in only three cases, and in these the relapses came on about one year after the cure was first made.

There should be no objection to this claim, for one often says he cures diarrhea or coryza or bronchitis, not meaning that the patient will never have that trouble again. So these cases are cured, some permanently, others from cold or exposure may have a recurrence of the attack at later and varying periods. The fact that the child has once suffered from enuresis is a factor in creating a predisposition to that trouble, so that almost any exciting cause may serve to initiate it again. The cases which relapsed were easily relieved by instituting the same treatment again.

It may be that I have been unduly optimistic; therefore it is my earnest desire to have this treatment tried by others, so that its limitations may be established and a more exact knowledge of its therapy be obtained. If I have seemed to claim too enthusiastically that it is curative, my extenuation is that I have found it so. I desire to have your critical trial of it, so that ultimately good may come to these young children whose nights are otherwise so uncomfortable.

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*USE OF HYDROTHERAPY IN NEURASTHENIA AND OTHER NERVOUS AFFECTIONS.**

By Wharton Sinkler, M.D.,
Physician to the Infirmary for Nervous Diseases, Philadelphia.

Hydrotherapy is a means which has been undeservedly neglected in the treatment of some of the functional disorders of the nervous system. In the treatment of neurasthenia it is one of the most useful adjuvants to the usual routine and remedies, and in mild forms of this affection it is often the means of restoring the patient to health independent of any other plan of treatment. In my experience hydrotherapy is of more utility in neurasthenic men than in women. It acts as a general stimulant to the circulation, aids the digestion, and gives the patient a sense of well-being and comfort that nothing else does. Like all other remedies, in order to get the best results from its use one must be provided with suitable appliances for its proper application, and one should have a certain amount of knowledge as to its physiological

*Read before the Philadelphia County Medical Society, May 8, 1901.

effects. No doubt good results are often obtained from baths and douches given with the conveniences of the ordinary bath-room, but in order to get the most favorable effects one should have apparatus by which the baths and douches can be used with scientific accuracy. For example, one should be able to gauge the pressure of the douche in pounds and to give the exact number of degrees of heat and cold. There is no better apparatus for this purpose than that which has been devised by Dr. Simon Baruch, and which has been installed in several institutions in this and other cities.

In using hydrotherapy for neurasthenics the method usually employed is as follows: The patient is placed in the hot-air cabinet until perspiration begins. He is then given the circular or so-called "needle bath" for one minute, beginning with a temperature of 95° and gradually reducing to 85°, with a pressure of twenty pounds. The Scotch douche is then applied to the spine. This consists in the application of an alternate douche of hot and cold water of a temperature of 105° and 80°, with a pressure of about twenty pounds. The treatment at first should last for only twenty-five or thirty seconds. After a few days the pressure is increased to twenty-five or thirty pounds, and the extremes of temperature used are much greater, alternating, for example, between 110° and 70°. After about two weeks' treatment, in addition to the circular and Scotch douche the fan douche may be used to the body, abdomen, and extremities. The patient's condition should be carefully watched, and if the reaction is not good it is necessary to go slowly in reducing the temperature and increasing the pressure of the water. It is my custom to have the pulse, temperature, and respiration of the patient taken before and after the bath, and to also have him weighed before and after. After the bath brisk friction is applied with warm, dry towels, and a few minutes' general surface massage is given. The patient may then be sent out for a short walk. Taking exercise after the bath is a point on which Dr. Baruch insists, and I find that it is a good plan not to allow the patient to lie down after the treatment, but to take judicious exercise, which promotes reaction.

Hydrotherapy does not agree with all neurasthenics, and one should watch its effects in each case carefully. In the excitable, nervous, and apprehensive neurasthenic the condition is often aggravated by the first few applications of hydrotherapy, just as it often is by massage or any other procedure. If the different forms of douches produce an unfavorable result, it is then best to begin with the wet pack and sponging the spine with hot and cold water at home, or in the patient's own room, until his confidence is gained.

The application of hydrotherapy is of great advantage in insomnia, and excellent results are obtained from its use. In some cases the use of a full hot or warm bath at bedtime will secure a good night's sleep. While taking the hot bath the patient's head should be surrounded with a cold, wet cloth, or an ice-bag should be applied. In most cases the wet pack is more efficient than the hot bath, and the use of friction to the surface after the pack is of great utility. In other cases the drip sheet does more good than either the hot bath or wet pack. In all of these methods the rationale of treatment is the same. First there occurs contraction of the capillaries of the surface and hyperemia of the brain and internal organs. This is followed by a reaction in which the skin circulation is increased and the surface becomes hyperemic, while the blood-vessels of the brain are depleted.

One of the most striking instances of the beneficial effects of hydrotherapy in insomnia was the case of a gentleman, aged thirty-five years. He had been actively engaged in business for several years, and as a result of the mental strain had become nervously exhausted. He had been abroad for two years and had consulted the leading authorities in nervous diseases there, and had been under the care of prominent neurologists in this country. He was sent to me with the idea that a course of rest treatment would be helpful, but finding after a short time no benefit from massage, electricity, and rest in bed, I sent the patient to Dr. Baruch for a course of hydrotherapy. The result of this treatment was most satisfactory. He was given systematic treatment daily. After a few weeks he was entirely relieved of insomnia, and his general health was restored to a normal condition. In the case of a young woman of twenty-seven, who was neurasthenic and suffered from headaches and insomnia, with a considerable amount of mental depression, a course of hydrotherapy enabled the patient to sleep normally after two weeks, and the whole general condition improved greatly.

In many cases of melancholia great benefit is derived from the systematic use of the hot-air cabinet, followed by the Charcot or Scotch douche. I have had several patients in whom the most satisfactory results followed this plan of treatment. Nervous dyspepsia is another affection which is successfully treated by hydrotherapy. The use of the fan douche applied briskly to the abdomen and epigastrium aids the digestion and improves the tone of the intestines. In conjunction with the external use of water, daily stomach lavage is a useful adjunct.

In the treatment of peripheral neuritis the application of hot fomentations is of recognized value, not only in relieving pain but in improving the neuritis. After the acute stage is passed the use of the Scotch douche and the fan douche is of great value in improving the circulation and restoring the tone of the muscles.

Sciatica has been successfully treated by means of hydrotherapy. The application of the douche over the course of the nerve, using a very low temperature and a considerable amount of pressure in order to produce great hyperemia of the skin, is a beneficial method. Dr. Baruch's plan of exceedingly hot fomentations applied over the nerve has been signally successful in his hands.

There are many other nervous disorders which are greatly benefited by different forms of hydrotherapy, but time does not permit me to mention all of them, and I have only in a cursory manner gone over a few of those neuroses which are most signally benefited by hydriatric measures.

SEROUS EXTRAVASATION CYST ON BOTH SIDES OF THE NASAL SEPTUM.

By Nathan G. Ward, M.D.,

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An extravasation cyst is a collection of fluid in a cavity of its own formation. The fluid transudes from the vessel wall or escapes by rupture of the vessel wall and collects in the lymph spaces, dilating them to an enormous extent, or dissects between layers of tissue, as beneath the skin or mucous membrane. The wall of the cyst is formed by compression of the surrounding tissue cells, which later may undergo inflammatory changes with organization into a distinct fibrous layer. If the sac is filled with serum it is called a serous cyst; if with blood, a blood cyst, hematocele, or hematoma. In a serous cyst there could not have been a rupture of the vessel wall, or it would also contain blood. These cysts are therefore extremely rare, and for this reason I wish to report the following case:

F. B., aged nine, a boy poorly nourished, of a strumous tendency, and small for his age. While playing on the street with other children he was pushed down, falling on his face against the curbstone, producing epistaxis and slight abrasions on the nose and upper lip, but not so severe as to cause any marked swelling, nor did he complain of any pain when he went home. His parents only learned of the fall by asking the cause of the blood on his clothing.

That night it was noticed he was very restless, tossing about, and suddenly starting in his sleep as if frightened. The following day he sniffed a great deal and was compelled to breathe through his mouth. His parents thought it was only a cold and paid but little attention to him. The second night the symptoms were of a similar nature to the previous one, but more severe.

The following day his mother took him to my clinic at St. Agnes Hospital. The external appearances of the nose were normal, there being no swelling nor discoloration. The anterior nasal cavities were closed by swelling of the septal cartilage, most marked on the left side. The area was too tender and the boy too fearful of being hurt to permit a satisfactory examination to determine the condition present. I was inclined, however, to think the nasal cartilages had been bruised, with a separation of the two layers—known as split cartilage—with extravasation of fluid between. I advised that he be brought in the hospital and under ether make a thorough examination to ascertain the trouble, and adopt such operative procedures as would seem to be advisable. The mother said she would have to first consult her husband. There being no need for immediate operation, 25-per-cent ichthyol ointment with lanolin as the base was prescribed to be applied three times a day.

Two days later when he returned the tenderness was much less, so that I could make a better examination. The membrane over the swelling was paler than normal, and I could elicit marked fluctuation. After

pharynx, or at the mouths of the Eustachian tubes, are liable to be overlooked unless carefully searched for. In my opinion it is unwise to depend on the statement of the patient, especially regarding the non-existence of a primary sore or a secondary eruption in such cases. When we are satisfied from the clinical picture that the case is one of specific disease, or where an obscure inflammatory condition of the nasopharynx does not respond to the usual treatment adopted in such cases, I think we are justified in instituting a course of antisyphilitic medication before any further developments take place. Occasionally we have to differentiate between syphilitic disease of the nasopharynx and diphtheria, tuberculosis, or malignant disease of the same region. A bacteriological examination of the secretion from the lesion and the therapeutic test of antisyphilitic medication will usually clear up a doubtful case, though the possibility of a mixed infection is not to be lost sight of. De Havilland Hall[6] has reported an instructive case bearing on this point. A man with a syphilitic history presented himself with a gumma in his throat, which was cured by large doses of iodide of potassium. A year later he presented the same symptoms and was relieved by the same means. A few months after he appeared for the third time, but the iodide had no effect, and he ultimately died of malignant disease.

Mounier[7] has directed attention to the occurrence as a late manifestation of hereditary syphilis of ulceration located in the upper part of the pharynx behind the palate, and observed only after careful examination with the rhinoscopic mirror. He reports three such cases—two in young men aged respectively eighteen and twenty-two years, and one in a girl aged eleven years, in whom the true nature of the disease was unrecognized for several weeks. In each a gummatous ulcer was found in the pharyngeal vault. I have had under observation and treatment continuously during the past two years at my clinic two cases of a similar character, occurring in sisters who are now aged respectively fifteen and thirteen years. Except for the minor ailments of infancy and childhood, both had been healthy from birth. The older child had been treated by the family physician for "catarrh of the head" for six months prior to the time when I saw her for the first time, although she had a perforation of the soft palate of three months' standing. An examination with the rhinoscopic mirror revealed an ulcerating gumma in the pharyngeal vault. The younger child presented the same symptoms, except that she had a profuse blood-stained, purulent, postnasal discharge. Rhinoscopic examination showed specific disease of the posterior edge of the vomer. I was able to trace the source of the infection to the father, who had his initial sore followed by secondary eruption one year before the birth of the older child. The mother had no manifestations of the disease. Both patients responded nicely to antisyphilitic medication. The older patient developed a syphilitic osteitis, affecting the alveolar process of the superior maxillary bone, about six months after the true nature of the disease was first recognized. This was intelligently treated at a dental dispensary, with gratifying results. During the past year there has been no recrudescence of the disease in either case.

The treatment of syphilitic disease of the nasopharynx must be thorough and intelligent if we wish to accomplish the best results. The patient must be frankly told the nature of the malady, of the importance of prolonged treatment, of the necessity of being under continuous medical supervision until the disease has been thoroughly eradicated, and be given explicit directions in plain language regarding the risk of contagion to others, by the use of eating utensils, towels, handkerchiefs, atomizers, throat brushes, which are often common property, especially among the poorer families. Antisyphilitic medication must be a combination of local and systemic treatment with mercury in some form, as our chief reliance, and iodide of potassium as an aid. As to the exact form in which the mercury should be administered, there is much diversity of opinion. It is largely a matter of individual preference. Personally I am in favor of the hypodermic method, the advantages of which have been summed up by Bulkley[8] as follows: "(1) It is an active remedy which can be perfectly regulated; (2) it avoids disturbing the digestive tract; (3) it avoids publicity in using remedies; (4) it is sometimes surprisingly curative when other measures have seemed ineffective." For this purpose I have used the bichloride in hypodermic doses of one-sixteenth to one-fourth grain, repeating the injections at first every five days, then every week, and when the patient responds to the effects of the drug I lengthen the interval

between the injections to two weeks. The dose is increased and the interval lessened if the specific lesions become rebellious at any time. Acting upon the suggestion of Yarrow,[9] I have lately been using the sozoiodol of mercury hypodermically with good results in from one-fourth to one-grain doses. The usual site of the injection is in the lumbar region, the needle being driven well into the muscular tissue and strict antiseptic precautions observed, so as to avoid the risk of abscess formation. Occasionally the hypodermic method does not result in benefit to the patient; then the internal administration of the drug will be indicated. It may be given in the form of the bichloride in one-sixteenth-grain doses, with or without iodide of potassium from ten to fifty grains, three times a day. The latter is particularly indicated in the tertiary forms of the disease. Again, it may be found that inunctions of mercurial ointment will produce better results.

As regards the duration of the treatment, my plan is to give the selected mercurial as long as the disease shows activity; then to give it in interrupted courses of about two months each, with intervals of about four months, over a period of two years, during which time the patient is kept constantly under observation. The local treatment of nasopharyngeal syphilis is of the highest importance and must be carefully carried out. I use Dobell's solution or some of its modifications with the postnasal syringe to cleanse thoroughly the diseased area, and instruct the patient in its use so that the treatment can be carried out twice daily at home. I follow the alkaline douche with one of black wash, also applied with the postnasal syringe, and direct the patient to apply it by means of a postnasal swab to the ulcers, if they can be reached. Frequently I insufflate, with a powder-blower, a mixture of equal parts of calomel, acetanilid, and boric acid over the affected area. In cases where there is much pain and dysphagia, I have found the local application of orthoform of benefit. Denuded or loosened bone must be carefully searched for with the probe, and curetted or removed. In addition to the antispecific medication the patient should be placed in the best hygienic environment, and careful attention given to bathing, exercise, open-air life, and diet. If the blood-count shows a deficiency of hemoglobin, as is frequently the case, iron in the form of Blaud's pill in five-grain doses three times a day will be of value. Arsenic may with advantage be combined with the iron in doses of from one to five minims of Fowler's solution.

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SOUNDING AND IRRIGATING THE FRONTAL SINUS THROUGH THE NATURAL OPENING.

WELLS (*Laryngoscope*, April, 1901) has found that to successfully sound the frontal sinus there is required a probe bent at three centimeters from the end, which should be rounded, and at an angle of about 100 degrees, though capable of being flexed to a greater or less extent to suit individual differences. Using the uncinate process as the guide (resection of the anterior end of the middle turbinate is necessary in some cases) to begin, the beak of the probe is applied well backward in the hiatus, and it is drawn forward and upward in the direction of the sinus at the same time that the handle is depressed. If it does not slip easily into the cavity force should not be applied, but the probe, held lightly in the hand, should be reintroduced, the ostium to be sought for with the beak a little in front of the hiatus. The following tests will show if the sound be in place:

The probe will have penetrated between six or seven centimeters from its extremity to the point where the handle is in contact with the anterior border of the floor of the nose.

The direction will be such that it makes an angle of about 60 degrees with the floor, or, what is the same thing, the handle will make such an angle with an imaginary horizontal line or plane, continuing the floor of the nose forward.

The beak of the probe will be directed forward.

The handle will permit of a certain amount of rotation.

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Leading Articles.

LOCAL SYMPTOMS RELIEVED BY THE CURE OF ANEMIA.

Twenty or thirty years ago there was probably no drug which was more popular and at the same time more abused than iron. Various fancy preparations of it were placed upon the market in considerable numbers, and first the profession and then the laity were imbued with the idea that it was a valuable tonic which could be employed with advantage in a large number of cases, most of which presented that real or rather indefinite aggregation of symptoms usually described by the term "general debility." In some instances, if not in the majority, the iron was combined with simple or peculiar bitters, or with substances like strychnine, which had a powerful effect upon the nervous system of the patient, and the improvement in appetite which followed the administration of the so-called tonic iron was attributed to that metal, when in reality the bitter substance deserved the credit. With an increased knowledge of the pathological changes which take place in the blood in various diseases, organic or functional, we have gradually developed an idea that iron has a very much more limited scope of usefulness than was thought at one time, and that it should be resorted to chiefly in those cases where anemia is a marked symptom, particularly where it belongs to that classification which is known as a secondary anemia, which is usually characterized chiefly by a lack of hemoglobin rather than by a diminution in the actual number of the red blood cells; it being held by many that iron is, as already stated, the hematic remedy when deficiency of hemoglobin is present, while arsenic is the one of choice when the red cells are deficient. These conclusions have been arrived at largely because clinical experience has shown, with the aid of the hemoglobinometer and the blood-cell counting apparatus, that great changes take place in the hemoglobin and in the corpuscles in many instances under the use of these two drugs.

Up till the present time the profession has frequently been content with noting marked changes from the normal in the constituents of the blood. This has been partly due to the fact that the examinations with scientific apparatus have been so accurate as compared to our old methods that extreme accuracy has not seemed necessary; also partly due to the fact that in both hemoglobin estimation and blood-cell counting certain moderate variations from the normal may be considered to depend upon faults in technique or in the instrument employed rather than upon any condition of the blood itself. Thus it is not uncommon for several investigators employing the various forms of apparatus used for the purpose of estimating hemoglobin to examine the blood of a single patient simultaneously and to get results which may vary as much as five points in the color scale, although each examiner may be experienced and skilful, the difference depending upon their inability to match color; and when it is considered that one or two corpuscles in the field of the blood-cell counting apparatus makes a vast difference in the total number when it is multiplied by 400,000 or 800,000, according to the dilution, pretty well marked variations in corpuscular richness may be reached by skilful counters. Because of these variations it has usually been held that the clinician should not be content with a single estimation of the hemoglobin or of the cells themselves, but that repeated examinations

should be made for the purpose of obtaining a norm.

One of the objects of this editorial is to emphasize the fact that moderate variations from normal should not on the one hand be given too great an importance, and on the other hand that they should not be too readily ignored. It is quite true that certain persons seem to get along with a corpuscular and hemoglobin richness considerably below the normal without any interference with their general health and the performance of their functions in a physiological manner. On the other hand, it is also true that some persons begin to suffer from certain symptoms as soon as any variation in the blood from normal occurs, and in this connection it must be recalled that the symptoms are not always directly connected with the blood or of a character which would call attention to this portion of the body. Thus, various anemic symptoms may be present, and yet the cheeks or lips of a young girl may still be quite rosy.

Further, it is a well known fact that in many cases of anemia there is not only an ordinary amount of fat, but even an excess of it; and, again, it is not to be forgotten that a patient may be sufficiently anemic to have backache, legache, and headache due to this cause without any palpitation of the heart, dyspnea, or difficulty in circulation or respiration on exertion. The administration of various preparations of iron to such a class of patients will very frequently relieve their neuralgia or other pain completely in the course of a few days or weeks, unless, perchance, the headache is rheumatic and associated with anemia, in which case the administration of iron sometimes makes the headache worse, and salicylates and iron have to be given to overcome the two conditions which are present.

FEEDING IN INFECTIOUS DISEASES.

We fear that the matter of diet when a physician is called to treat a case suffering from a severe malady does not, as a rule, receive the attention which it deserves. We are apt to study the disease carefully, to prescribe medicines for the relief of symptoms, or the prevention of dangerous complications, and pay too little attention to the maintenance of the digestion and strength of the patient by the prescription of proper foods taken at the proper intervals. Those who have read these editorial columns during the last few years will remember that we have again and again insisted upon the necessity in the average case of typhoid fever of giving a more liberal diet than is commonly resorted to. Of course, there are cases in which an absolute milk diet is a necessity; but these are rarely met with in practice. Indeed, there are other instances in which it is well to keep milk away from the patient, for it is not to be forgotten that while milk is a valuable nutrient, on the other hand it is apt to produce constipation and tympanites. In a number of other infectious diseases, most of which are not so prolonged in their course as typhoid fever, it is very important that we should provide the patient with readily assimilated foods, frequently administered, to enable him to maintain his vitality and combat the infection, and there are few infectious diseases in which this holds more forcibly than in the case of diphtheria, where difficulties in feeding not infrequently arise through the fact that the child takes a distaste for certain articles of food, is unable to swallow because of the paralysis of the muscles involved in this act, or refuses food because the throat is painful. An excellent article dealing with this subject has recently been published in the London *Lancet* by Dr. R. G. Kirton, who is the senior assistant medical officer of the Brook Fever Hospital, near London. In the beginning of his article he points out that the feeding of a case of diphtheria should never be stopped because the child experiences difficulty in taking food. If necessary, the child should be fed through the nasal tube, by the rectum, or even by subcutaneous injection, although, of course, the feeding by the mouth is more easily carried out, and is to be preferred in most cases. He then enumerates the various conditions which render feeding impossible and inadvisable, and they are inability to swallow owing to pain or swelling, regurgitation due to palsy, to the entrance of food into the larynx, struggling on the part of the child, and obstinate vomiting. It might be thought that cases of obstinate vomiting could not be benefited by the use of the nasal tube. But this is incorrect, as it has often been found that vomiting ceases when the patient is fed in this manner.

In regard to the methods which should be followed in feeding by the mouth, an effort should be made to make the food agreeable to the taste of the child, flavoring it, when

milk is used with tea, coffee, or cocoa, sweetening it slightly, or mixing the milk with one of the well known infant foods. The feeding should be every three or four hours at least, and to a young child as much as four or five ounces of milk should be given at one time. This milk may, in certain cases, where there is a tendency to curdling, be diluted with varying amounts of barley water in the proportion, say, of one to three ounces. It is also important to remember that not infrequently cases of regurgitation are able to swallow food, if it is thickened very materially so as to be about the consistency of oatmeal, or even quite pasty. It is well, therefore, in such cases, to thicken the milk by the mixture of the various foods that we have named, by using arrowroot or gelatin, and, again, by using the curds of "curds and whey." So, too, soft-boiled eggs may be tried, but often they must be mixed with finely crumbled bread so as to be semisolid. In some cases the patient will take a small quantity of food by the mouth, but seem to get weary at the act of swallowing. It should be remembered that such cases do not in reality receive adequate nourishment, and the mere manifestation of a lack of desire for food should not give the idea that an adequate quantity of nourishment has been swallowed. The food that has been taken by the mouth in these patients should be supplemented by the aid of nasal or rectal feeding. If there seems to be difficulty in digesting food, it should be carefully peptonized, the peptonizing process not being carried far enough to make the mixture bitter.

Often when vomiting is persistent it is wise to give the stomach a rest for twenty-four hours, and nourish solely by the rectum, and the value of hot applications over the epigastrium in these cases is not to be forgotten. From time to time, if there is any evidence of failure of the circulation, stimulants should be cautiously given, and of these probably the best is brandy or minute quantities of dry champagne.

In Kirton's opinion the following conditions render nasal feeding advisable: (1) Inability to swallow from regurgitation and paralysis of the muscles of deglutition; (2) coughing on feeding due to the entrance of food into the larynx, especially in tracheotomy cases; (3) cases which vomit when fed through the mouth, but do not vomit when fed through the nose; (4) cases exhausted by mouth feeding; and (5) the moral effect from nasal feeding, which is sometimes useful in those children who refuse food though really well able to swallow.

The best way to perform nasal feeding is to use a soft-rubber tube which is passed through the nasal chambers back into the pharynx, and through this raw meat juice, egg, cream, and diluted brandy may be poured, the food being given warm and carefully strained, so as not to have any hard lumps which would choke the tube, or be difficult of digestion.

The indications for rectal feeding are vomiting, great difficulty in passing the nasal tube, instances in which nasal feeding seems to unduly excite the patient, and cases in which nosebleed is produced by the passage of the tube. An injection by the rectum should be given by means of a funnel and soft-rubber tube, passed as high up the rectum as possible, and the feed allowed to flow in by force of gravity, but should not be pumped in with a ball syringe; and any one of the ordinary nutrient enemata may be employed in this way.

Too frequent feeding by the rectum is apt to cause irritation of the mucous membrane and diarrhea. Three times in twenty-four hours is quite enough for rectal feeding, and once in each day the bowels should be first washed out with a little warm water in order to remove the residue of the previous injection.

The most unusual form of feeding suggested by Kirton is that by subcutaneous injection. He quotes the recommendation of Laslett, who has injected sterile horse serum into the subcutaneous tissues, and who claims that by this means a considerable amount of nourishment can be given to a child. Twenty to forty centimeters is about as much as it is wise to inject daily. He claims that he has never seen disagreeable effects of any note arise from these injections, although transient rashes have occasionally been observed. In this connection it is not out of place to remind our readers that the thirst which is present in many diseases which are associated with irritability of the stomach and vomiting can be much relieved by the use of hypodermoclysis, injecting normal salt solution under the tissues. We have not infrequently given great relief to thirst and maintained the action of the kidneys for a number of days in this manner when the quantity of liquid which the patient could take by the stomach was infinitesimal; the salt solution

also supporting and maintaining the necessary plumpness of the body. It certainly is to be strongly commended, not only because it affords the body fluid, but also because it washes out of the kidneys various toxic materials which if retained might be very deleterious.

THE CONDITION OF THE URINE IN THE TREATMENT OF SKIN DISEASE.

We are accustomed to make careful inquiries in regard to the condition of the bowels of most of our patients before we undertake to prescribe for any of the symptoms which may be giving them annoyance, and careful practitioners are also in the habit of examining the urine for sugar and albumin when they think that there is any possibility that albuminuria or diabetes is the cause of the symptoms which the patient may be suffering from. Sufficient attention is not paid to the quantitative estimation of the urea and other solids which the urine contains, nor is microscopic examination resorted to with sufficient frequency to determine the presence of oxalate crystals or other substances which may be present in the urine in small amount in health, but which are often present in exaggerated quantities when certain of the metabolic processes are disordered. It is by no means an uncommon thing for us to see cases of obstinate skin disease which have not been benefited by ordinary local measures speedily improve when in addition to local measures treatment directed to an improvement in the digestion and the increased activity of the kidney is instituted.

We believe that obstinate eczematous conditions in young children can be very much relieved by seeing to it that the child receives copious draughts of water to flush his kidneys, and alkaline diuretics, which will also tend to decrease acidity in general. Not infrequently in such children when the rash is obstinate, the urine excessively acid and concentrated, such treatment will be followed by good results, whereas, on the other hand, if the urine is alkaline and productive of irritability of the bladder the administration of small doses of benzoate of ammonium is distinctly advantageous.

Our attention has been called very recently to this important subject by an interesting article published by Dr. Bulkley, of New York, in the *Medical Press and Circular* of May 15, 1901, in which he records a very large number of instances in which he studied the relationship between deficient urinary excretion and certain diseases of the skin. In one of his papers which he published upon this subject he gave the analyses of over 300 specimens, and in the study which he now reports his remarks are based upon 2000 urinary analyses from 569 patients about equally divided between the two sexes. While his results do not show that there is any definite relationship between certain skin diseases and definite conditions of the urine, they emphasize a fact that we have already insisted upon, that a careful study of this secretion should be made in all cases of obstinate skin disease.

THE USE OF CATHARTICS IN ABDOMINAL SURGERY.

Practitioners of medicine who have been active in the profession for a period covering the last two decades will as they look back recognize extraordinary changes which have taken place in the ideas of the profession concerning the proper treatment of abdominal inflammations. Twenty years ago it was almost universally taught that in the presence of threatened or actually present peritonitis or enteritis it was the duty of the physician to relieve pain and allay inflammation by the administration of doses of opium which were at once sufficient to relieve pain and to exercise what our forefathers were so fond of referring to as the "antiphlogistic influence" of this powerful drug. Largely under the leadership of the late Mr. Lawson Tait, a large body of the profession came to believe that in a certain proportion, if not all cases, of abdominal inflammations it was best to employ saline purgatives in such quantities that the bowel was emptied and that all the inflamed tissues were depleted of a large quantity of serum drawn off from the inflamed zone through the action of the saline, and we fear that in some instances physicians rushed to the other extreme and ignored opium entirely, employing salines too universally, failing thereby to follow the middle path, which would indicate that under certain circumstances both classes of drugs had their field of usefulness. It is of course true that in the presence of violent abdominal pain it is a grave mistake to administer a sufficient quantity of morphine or opium to so thor-

oughly benumb the patient's sensibilities as to make him refuse operation for his relief, because in the absence of pain he concludes that the pathological process is improved. On the other hand, we have always held that it was a mistake to refuse all pain-relieving drugs to such patients, and that it is the duty of the physician, prior to the decision as to an operation, to use morphine to benumb the *excess* of pain, although a *sufficient quantity should not be given to mask the symptoms or to develop a false confidence as to the condition of the patient.*

In the *Boston Medical and Surgical Journal* of June 27, 1901, Dr. Crandon, of Boston, has published an interesting paper upon the comparative effects of different cathartics and enemata before operation in abdominal cases where surgery was required. He concludes that in acute pelvic peritonitis both enemata and drugs by the mouth should be used to produce catharsis before operation, and after operation drugs by the mouth and oil enemata may also be given. On the other hand, in all acute inflammatory conditions of the abdomen, where the alimentary canal is involved, the bowels should be moved by enemata alone, both before and after operation, and an enema of salts, turpentine, and glycerin is the best. This enema he injects through a soft No. 30 French rubber catheter high up into the rectum, and if possible into the sigmoid. It is made up as follows:

> Epsom salts (50-per-cent solution),
> Turpentine and glycerin, of each 2 ounces;
> Water, 10 ounces.

This is to be retained as long as possible, and usually produces a good movement of soft feces and gas without bearing down.

He states that the sacrum and buttocks should be well oiled before this enema is given to protect the skin from the inflammatory effects of the turpentine.

It will be noticed that these conclusions which have been reached by Dr. Crandon are somewhat at variance with those which have heretofore been generally held by the profession, who have been accustomed to administer salines by the mouth in cases of acute enteritis rather than to administer them by the rectum, although it will also be remembered that an examination of the caput coli has again and again proved that no feces in a semisolid state are to be found there whether a purgative has been used or not. It is the descending and transverse colon that contains feces, and accumulations in the caput coli in cases of appendicitis rarely interfere with an operation.

SURGICAL TREATMENT OF TUBERCULAR DISEASE.

Although tubercular disease has been compared to cancer and in some ways resembles the latter, the comparison is a misleading one, since a local tuberculosis under favorable circumstances frequently undergoes spontaneous cure, while this termination, though possible, in cancer is so rare as to constitute a curiosity. The very fact that a tuberculosis undergoes spontaneous cure has militated strongly against its proper surgical treatment. Both doctor and patient have too often lost sight of the possible, nay frequent, complications attendant upon undue confidence in this spontaneous cure; moreover, it is a well proved fact that the cure is often not a permanent one, and at the best it is extremely slow. A patient with a focus of tubercular infection is always subject to the dangers of dissemination and of mixed infection.

Carless notes that articular troubles are more likely to be associated with pulmonary complications, while genital tuberculosis is more frequently the precursor of meningeal mischief. In support of the latter statement he quotes Simmons to the effect that during the last fifteen years or more sixty cases of tubercular disease of the genital organs came to the post-mortem table, and of these nineteen—that is, nearly one-third—died of tubercular meningitis; while of the phthisical patients who had been examined, only five per cent had meningeal mischief. Moreover, during the last five years he had examined post-mortem thirty-five male cases of tubercular meningitis, and of these sixteen were the subjects of genital tuberculosis.

Carless observes that direct extension to inaccessible regions and the danger of suppuration should weigh against a too complacent and conservative attitude toward an apparently quiescent state of the disease.

It is then obvious that the ideal treatment applicable to an accessible tubercular focus is complete extirpation. Where this is practicable, and is not attended either by immediate operative risk or remote crippling deformity, it should take precedence of all other measures. There are, however, many circumstances which much modify the judg-

ment of the surgeon in individual cases, all in their ultimate analysis, however, dependent upon the difficulty or impossibility of eradicating the disease without immediately threatening life or producing disability. There is also the well known fact that under favorable circumstances and in certain regions a conservative treatment yields admirable results.

This conservative treatment while taking advantage of the benefits incident to climate and diet, tonics and internal medication, is by no means limited to these long-recognized helps in the treatment of tuberculosis. The very first principle in the treatment of any inflammatory process is the application of rest. This is accomplished by splints, bandages, and, where necessary, by extension. The patient is kept out of bed unless the tubercular focus is so situated that it can be put at rest in no other way than by bed treatment. Counter-irritation, at one time extremely popular in the treatment of a tuberculosis, is now almost abandoned, and has been displaced by Bier's method of passive congestion. This treatment is dependent upon the fact that bacilli do not thrive in tissues subject to venous stasis. This stasis is accomplished by so placing elastic ligatures that the diseased area is subject to venous congestion for about twelve of each twenty-four hours.

Antiseptic injections into the affected tissues may be classed as conservative means of treatment, and of the various drugs employed, iodoform is that which has been generally accepted as the most efficient. The preparation commonly employed is a ten-per-cent glycerin-iodoform emulsion. These injections are particularly efficacious in the cure of abscesses connected with diseased bone. The technique which has been most successful consists in simple evacuation of the pus, irrigation with a sterile antiseptic or neutral solution, injection with a ten-per-cent iodoform emulsion, and closure without drainage. The opening should only be as large as is needful for complete evacuation. The time has passed when, in the course of tuberculous disease, the formation of an abscess in or about a joint is regarded as an absolute indication for total excision of such a joint.

Mikulicz notes that seventy-three per cent of abscesses treated by iodoform injection healed without subsequent formation of a sinus.

As to tuberculosis of the genito-urinary organs, it not infrequently happens that attention is first called to the disease by the typical nodulation of the epididymis. For some years it has been the habit of surgeons to treat this local manifestation by castration, particularly when the bladder, prostate, seminal vesicles, and kidneys were apparently free from the disease. Lately it has been shown that the epididymis can be removed complete without injuring the testicle; hence, when the tuberculous infection seems to be strictly limited to the epididymis this procedure should be chosen in preference to castration. Occasionally when there was some doubt as to the health of the testicle this organ has been split, and if found healthy the two halves have been sewn together again.

The latest treatment advocated for tuberculous epididymitis or orchitis has been complete section of the cord. The entire circumference of this structure is taken up in two ligatures and is cut between. Muclaire, who thus treated seventeen patients, notes that usually a slow atrophy results, though in one of his patients acute gangrene occurred.

In tuberculosis of the seminal vesicles, prostate, bladder, and kidney, the prognosis under the best conservative treatment is extremely grave. Vesical tuberculosis has certainly been cured by intravesical injections and irrigations, particularly by iodoform emulsions and by instillations of dilute solutions of bichloride of mercury, 1-6000: 10,000. Experience, however, shows that this is not the rule. It also shows that cure by the most radical surgical procedure is also exceptional. None the less, when the absolute failure of conservative means is apparent an attempt at total extirpation is indicated, even though this directly threatens life.

As to kidney tuberculosis the feeling is now general as to the advisability of nephrectomy when the disease is unilateral. Indeed, many seemingly permanent cures are reported.

It is interesting to note that modern surgery is in the treatment of tuberculosis being carried to its logical conclusions; that localized tubercular processes in the lung have been attacked, and apparently successfully; that tuberculous disease of the brain is not entirely beyond the surgeon's reach, since very great relief, if not cure, can be accomplished by either a lumbar puncture or trephining and subdural drainage; and that

tuberculous peritonitis has been so often cured by a simple laparotomy that the prognosis must be regarded as fairly favorable.

Reports on Therapeutic Progress

FORMALDEHYDE SOLUTION IN THE TREATMENT OF SUPPURATIVE OTITIS MEDIA.

In these cases Dr. Ward has obtained the best results with formaldehyde and has adopted the following plan, or slight modifications thereof, which he records in *American Medicine* of June 15, 1901. The ear is thoroughly cleansed, after which the canal and drum are examined, and note taken of the size and situation of the perforation, with the degree and extent of the inflammation. If the ear is filled with thick, tenacious secretions, and the perforation is small or unfavorably situated to allow free drainage, an incision is made in the posterior inferior quadrant of the drum. This is rarely necessary, as in most cases there are large perforations, or the entire drum is destroyed. After cleansing, the head is inclined to the opposite side and an aqueous solution of formaldehyde, five drops to the ounce, is instilled with a medicine dropper, enough being used to fill the middle ear and external canal. No packing is employed, because this class of patients almost invariably remove it and stuff the canal with cotton, which prevents drainage.

For home treatment, if the secretions are thick, lysol is prescribed, 15 to 30 drops in a half-glass of warm water; with this the ear is syringed, using a soft-rubber pus-syringe; sufficient force to cause dizziness cannot be used, nor does it force the pus into the mastoid cells. All syringing is stopped as soon as the discharge is lessened to a degree so as not to block the canal. In those cases not requiring syringing, and also ten minutes after syringing in those that do, the patient is directed to lie down on the opposite side, and five to ten drops of the formaldehyde solution, warmed by pouring it in a spoon and holding it over the gas-jet or lamp, or by setting the bottle in warm water, is dropped in the ear. The patient lies in this position for ten minutes to allow the fluid to permeate and come in contact with all parts of the tympanum; this treatment is repeated night and morning.

The author has treated forty cases by this method. In thirty-five the discharge ceased entirely in from three to fifteen days, the average time being about a week. In five cases the discharge was lessened but not entirely checked; in two of these the treatment was not faithfully applied, and in the other three there was bone necrosis. In all these cases the fetid odor entirely disappeared in from two to five days before the cessation of the discharge; even in the five cases not cured there was no odor so long as the treatment was faithfully carried out. After the discharge had ceased for a week the treatments were reduced to one a day, then every second day, and finally every third day; this has been found necessary to prevent recurrences.

In acute cases one to three drops of formaldehyde to the ounce is used, as stronger solutions produce excruciating pain. In the most obstinate cases and those with small granulations, alcohol is added.

> Formaldehyde, 5 drops;
> Alcohol (95-per-cent), 2 drachms;
> Aqua, 1 ounce.

Small granulations are quickly reduced by this solution and they do not reappear, but large ones require curettement. As a result of the treatment ulcerations were quickly healed, but it had very little effect upon caries of the bone.

In a few cases the fluid passed down the Eustachian tube and produced severe burning and a choking sensation in the nasopharynx and throat. No serious results were caused thereby, but it was unpleasant enough to cause the patient to stop its use; this was entirely prevented by directing the patient to lie on the back with the head partially inclined to the opposite side. Vacher reported a similar effect during his irrigations.

Proper treatment must be applied to the nose and nasopharynx in each case, and attention given to the general health. The excretions are stimulated by small doses of calomel, followed by full doses of sodium phosphate; if there are any indications of worms, anthelmintics are prescribed. As a tonic, arsenic sulphide gr. 1/50, or calcium sulphide gr. 1/4, four times a day to a child eight years old, gives excellent results. If the patient's health is again reduced below the normal and the catarrhal process in the upper respiratory tract becomes worse, there are recurrences as from all other methods of treatment.

The reports of the use of formaldehyde in suppurative otitis media prove its value in this disease and warrant its continued use.

THE TREATMENT OF LUPUS WITH ETHYL CHLORIDE.

DETHLEFOEN *(Hospitalstidende,* Jan. 16, 1901) reports a case of lupus of the face treated with ethyl chloride. The treatment consisted in freezing the affected parts without previous scraping. During the first week the freezing was done daily, later every second or third day. After each freezing there occurred serous effusions which dried up into a scab. The scab was removed before the next freezing. After ten weeks the ulceration was healed, the lupus nodules had disappeared, and the whole was covered with smooth skin of almost normal appearance. The patient was a woman, and the disease affected the nose and cheek extensively. The photographs show a remarkable result.—*British Medical Journal,* May 11, 1901.

THERAPEUTICS IN THE NINETEENTH CENTURY.

In his address before the American Medical Association N. S. DAVIS, JR., made the following remarks in regard to this topic, and we quote from the *Journal* of the association of June 8, 1901:

The wonderful, the revolutionary discoveries made by students of internal medicine during the nineteenth century are not always appreciated as they should be, for their results are often demonstrable only by statistics; and the dramatic rescue of individuals from certain death which the surgeon at times accomplishes unfortunately cannot be effected by the therapeutist. It is not in the nature of his art. Great progress, however, has been made in the use of medicines and remedial procedures. Good reasons can be given for their employment, and their mode of action can be explained. Empiricism no longer governs their use as it formerly did. The placing of therapeutics upon a scientific basis began in the last century, when the physiological effect of drugs was first demonstrated by experiments upon animals.

No field of medical research needs cultivation so much or is more certain to yield a rich harvest than therapeutics. It is surprising that we have not a larger volume of accurate knowledge of the effect of drugs than we do possess. Of late pharmacology has been neglected for studies which have temporarily been more enticing to experimenters, such as bacteriology and experimental pathology. Moreover, a knowledge of these subjects is essential to enable a clinician to apply his therapeutic resources to the mitigation of suffering, the support of strength, and the elimination or destruction of noxious substances. One can safely prophesy that the exact utility and the limitations of drugs and medical procedures will be defined in the present century.

To accomplish this, not only is more knowledge required of the physiological action of drugs, but also better means of accurately measuring their effects when they are given to patients. We know when pain is relieved we can sometimes measure effects produced upon the heart and blood-vessels and temperature, but beyond this we depend for knowledge upon the impressions of physicians, impressions which must be corrected and often reversed by a wide experience. Clinicians possess only a few appliances or methods for the exact study of the sick. It is to be hoped that more will be discovered, and that they will also make it possible to register with accuracy the effect of drugs. When this is accomplished undoubtedly a smaller number of useful drugs will be employed, but these with greater exactness.

It is true that drugs are often used to-day when they are not needed, because patients demand them; but this will be changed when laymen learn that it is the function of a physician to teach them what to do to give nature the best chance to effect repair, what to do to make themselves comfortable and to preserve life; when they learn that it is a physician's function to teach them how to protect others from the same ailment, to foretell the possibility of recovery or death, and to avert or forestall complications. Medical men should include time and faith in their materia medica as important means of effecting a restoration of health. By this is not meant faith in a fetish procured in an apothecary's shop, but faith in the wisdom, honesty, and disinterested devotion of physicians which will enable them to accomplish all that can be done for the suffering.

Although the greatest discoveries in the field of internal medicine have been applicable to the prevention of illness in the masses, much has also been done to increase

the chances of recovery of individuals who are sick. Dr. Davis here calls attention only to a few of the improvements in treatment which have been effected to remind us of more. Typhoid fever, which has been a scourge in all civilized countries, and constantly present in all large centers of population, has not only been greatly lessened, sometimes even suppressed, by improved hygiene, but the chances of recovery of the one who is sick with it have been increased several fold by improved methods of treatment. Twenty-five years ago the mortality from typhoid fever in the hospitals of the world was from twenty to thirty-five per cent; to-day it is from five to fifteen. The better results are due to the cold baths which are used, to a more generous supply of fresh air, to proper feeding, and to protection against, or the prompt treatment of, complications.

One great therapeutic discovery has been made at the end of the nineteenth century—the discovery of antitoxins, the natural antidotes to the poisons of infectious agents. For a very long time it had been known that something developed in the human system during the course of many ailments which gave to the sufferer from them for a variable time immunity from a recurrence of the same disease. Until the existence of parasites and of poisons generated by them was proved, an antitoxin was of course unrecognizable. Moreover, the possibility of such a thing in diseases, one attack of which did not cause immunity to others, was not even suspected. But diphtheria antitoxin, the most efficient of those of which we know anything, is one belonging to this last group of ailments. The chemical composition of antitoxins is yet to be discovered. Since antitoxin has been used the mortality from diphtheria has been reduced about one-half. The most extensive collection of statistics gathered from all civilized countries shows that when antitoxin is used on the first day of the disease the mortality is five per cent, increasing rapidly to thirty per cent when used on the fourth day or later. Before its employment the average mortality of the disease was from twenty-five to thirty-five per cent. To effect a still greater reduction in the death-rate from this ailment, it is necessary that it be recognized early, and that antitoxin be employed more generally as a preventive for those who have been exposed.

That tetanus antitoxin and plague antitoxin are valuable is admitted. Many others, such as pneumonia, typhoid, tubercle, scarlet fever, erysipelas, and streptococcus antitoxins are still in the experimental stage. But even though it should be found that few natural antitoxins can be isolated for use as remedies, those already discovered confirm physicians in the hope that specifics will be found some day.

Another therapeutic discovery made at the close of the century which has thrown a flood of light upon some obscure points in physiology and pathology, and has restored to usefulness many who were formerly incapacitated and incurable, is that of internal secretions, and especially the rôle of the secretion of the thyroid gland. Ingredients in the thyroid, suprarenal bodies, and ovaries produce as definite effects upon the living body as many extracts from plants or synthetic chemicals. The pituitary body, the thymus, and bone-marrow may also have a value as yet undetermined. The rescue of those suffering from myxedema and cretinism by the administration of thyroid gland is one of the few happy dramatic incidents which fall to the lot of the practitioner of medicine.

That a much larger proportion of recoveries from tuberculosis occur to-day than formerly is evident from the statistics of this disease, but this lessened mortality is not due to prevention only. Trudeau has estimated that eighteen per cent of all persons have tuberculous lesions, because a reaction to tuberculin can be demonstrated in that proportion. This statement is confirmed by Councilman, who states that his autopsy statistics show that at least seventeen per cent of all who die have had this disease. But in spite of this prevalence the mortality from the ailment is lessening.

Rabies and tetanus are two diseases which until recently were thought to be incurable. Rabies can be suppressed by killing unowned dogs and by muzzling the rest. Upon this point the following statistics from England are very instructive: In 1887, 217 deaths occurred in Great Britain from rabies; in 1888, 160; in 1889, 312. A muzzling law was then enforced. In 1891 the death-rate from the disease fell to 129; in 1892, to 38. The muzzling ordinance was repealed, with the result that in 1894, 248 deaths occurred from mad dog bites, and 672 in 1895. Again muzzling was made compulsory. The death-rate once more

diminished; in 1897 it was 151; in 1898, 17; in 1899, 9; and in 1900, none!

Pasteur's great discovery of a method of attenuating the virus of rabies and rendering those who have been bitten by mad dogs immune by rapidly accustoming them to stronger and stronger viruses has reduced the mortality from 16 to 0.33 per cent.

Tetanus, quite common in hospitals formerly, is now prevented by properly cleansing and protecting wounds. It has become so rare a disease that to-day most students do not see a case of it during their college course.

RHEUMATIC CHOREA: ITS VARIETIES AND THEIR TREATMENT.

In the course of an article on this subject in the *Medical Press and Circular* of May 29, 1901, GUTHRIE gives the following directions:

Sthenic Cases (Severe).—Absolute confinement to bed is essential. The bed should have padded sides in order to prevent the patient from hurting himself or falling out. It is often necessary to protect bony projections by cotton-wool packing. Carefully applied splints to both arms and legs are sometimes useful.

Chloral hydrate is the most valuable remedy for such cases. It must be pushed until natural sleep is procured. Sometimes five-grain doses, thrice daily, are sufficient (for a child of five or six), but it is usually necessary to increase the dose and to give it every four hours in order to bring the patient fully under its influence. Ten to fifteen grains at a dose may thus be given to a child of eight or ten. The bromides seem less serviceable alone, but may be combined with chloral, and they are best administered per rectum.

The pulse and heart should be carefully watched whilst the patient is under chloral, and if they show signs of failure, brandy and digitalis, strophanthus, or caffeine should be given.

The tincture of cactus grandiflorus, in doses of two or three minims, is useful when there is much cardiac disturbance or feebleness without definite signs of endocarditis. In very severe cases, in which even chloral hydrate fails to procure rest and sleep, inhalation of chloroform may be necessary. In milder sthenic cases other nerve sedatives are of use. Antipyrin in doses of three to five grains for a child aged between five and eight is often efficacious, as also is monobromide of camphor, one to four grains three times daily with licorice powder. Extract of physostigma, one-twentieth to one-sixth grain, with extract cannabis indica, one-third to one-half grain, have been used and with good effect.

The Use of Arsenic.—It is to be regretted that the Newcastle quack who confessed on his deathbed that his chorea cure contained large quantities of arsenic did not die impenitent. Had he merely confessed to spells and incantations he would not have done much harm. But, as Voltaire said, "spells and incantations when combined with a sufficiency of arsenic may destroy whole flocks of sheep."

It is not known how many choreic sheep have been actually destroyed by arsenic, but many have been rendered extremely ill thereby. It is believed that the practice of pushing arsenic until what are euphemistically called "constitutional symptoms" ensue is mischievous, useless, and unjustifiable. Arsenic in poisonous doses is in no sense a specific for chorea. Yet it is an undoubted fact that choreic movements sometimes cease by the time that the accumulative treatment by arsenic has reached its height. What is the explanation? Dr. Rolleston asks, "Does arsenic cure chorea because it makes the patient ill in another way and unable to manifest the original diseases?" It is not believed that, given in this way, arsenic cures chorea at all, and it is thought the real explanation is that in such cases the sthenic form of chorea has given way to the asthenic, as commonly happens when arsenic has not been administered. The choreic movements have ceased, but the disease is in no sense cured, and arsenical poisoning may be superadded to the original complaint. In cases where enormous doses of the drug seem to be taken with impunity, it may be that they have not been absorbed. The rapid emaciation which often accompanies severe chorea shows that absorption is at a low ebb. In some cases symptoms may not disclose themselves until a fortnight has elapsed since the medicine was stopped (Railton, *Medical Chronicle*, February, 1900). Although strongly opposed to the routine treatment of chorea by heroic doses of arsenic, the author believes that, given in ordinary amount, it is most valuable in all mild cases.

Salicylates.—One argument against the rheumatic origin of chorea has been that the movements do not seem to be checked by salicylates. This is not altogether true. The author found salicylates as beneficial in relieving the pains of chorea as the pains in ordinary articular rheumatism, and with the relief of pain the course and severity of the chorea is lessened.

Some deny that salicylates have any effect in shortening the duration of rheumatic fever. But the majority will admit that pain and swelling of the joints which had entirely ceased under salicylates often return directly the drug is withheld. In many cases of chorea there is evidence of disordered digestion, foul breath and tongue, loss of appetite, constipation or diarrhea.

Salicylate of bismuth is useful in such cases, or salol in a castor oil emulsion after a dose of calomel.

Treatment of Subvarieties of Sthenic Chorea.—The acute stage characterized by spontaneous movements seldom lasts longer than one or two weeks. At the end of this time the asthenic condition or one of the subvarieties of the sthenic makes its appearance. The subvarieties may linger on indefinitely for many weeks or months, and the condition may in rare instances become chronic unless appropriate treatment is adopted.

The methods of treatment are "suggestion," physical exercises, and rest, combined or used singly.

Suggestion (by which is not meant hypnotism) is useful in cases where movements only occur when notice is taken of the child, and on attempted voluntary action. Such children are naturally timid and self-conscious, and they require much patience, gentleness, and encouragement for their management.

1. Suggestions that the child should lie quietly should be repeated in the soothing manner used by the hypnotist. At the same time the flourishes and wriggles should be restrained, and the child will soon learn to lie completely relaxed and flaccid under observation, which is the first step gained.

2. Passive movements combined with suggestion. It will be found that choreic movements occur directly the child's limbs are manipulated. To correct this condition the patient's hand should be placed between the observer's hands, and raised and moved in various directions, suggestion being made meanwhile that the child should keep its own hand quite still. At first it will be snatched away, and flourished as usual, but soon the patient learns to control the involuntary movement by an effort of will which makes the whole limb rigid. This is an indication of improvement, though by no means of a cure; but by degrees the child discovers that its efforts to control involuntary movements need not be so strenuous, whilst its limbs are guided and restrained, and accordingly the rigidity becomes relaxed. The measure of improvement is easily ascertained by the observer. Until the limbs can be passively moved freely in all directions without exciting rigidity or spasm no other than passive exercises should be employed.

3. Voluntary movements under guidance. The patient is then directed to perform the same movements as have been passively executed, whilst his hand is still controlled, guided and helped by the observer.

4. When this can be done without exciting spasms or rigidity, but not before, voluntary movements without control, in imitation of the observer's, should be practiced.

The movements should be of the simplest character at first, and gradually made more elaborate. They should be executed slowly and steadily without jerks and flourishes. The chief difficulty is at this stage incoordination rather than spasm, and the mode of treatment is adapted from Frankel's system in the case of locomotor ataxia.

Elaborate apparatus is unnecessary. Simply bringing the fingers together from a distance and touching various parts of the body with them are admirable exercises. Precision of movement can be gained and the child kept amused by various toys and games. The kindergarten supplies simple and cheap apparatus which answer the purpose. Colored balls hung by strings on a frame or strung on wires can be used. The balls can be made to swing, touched and arranged in patterns under direction. Then solid squares or cubes can be built in various shapes and forms. Such games as draughts, dominoes, or solitaires can be used for older children; or "spilikins" can be easily improvised with a box of matches; or pegs to be fixed in the holes on a backgammon board can be pressed into service. A child may usually be considered cured when it can build a two-story house of cards.

The aim of exercise is to encourage freedom as well as precision in movement. For this reason it is inadvisable to allow the

patient to write or thread needles or to sew. All these actions require much mental concentration, fixation, and tension of the various muscles employed. There is no objection to free-hand drawing on a slate or blackboard, and paper plaiting or weaving may be encouraged. It is important that all exercises should be carried out under supervision, otherwise the child becomes careless and ceases to take any trouble provided that it can amuse itself, and if neglected often drifts into what the author has called "residual chorea." The treatment in this event is by a course of drilling, marching, wheeling, and standing at attention at word of command in particular; for the child's chief faults are inattention and carelessness, which have to be overcome. Ordinary calisthenic exercises are also useful in these cases.

The treatment of the lower extremities is on the same principles as that of the upper. The patient should not be allowed to stand or try to walk until all movements of the legs can be executed with fair precision whilst lying down. Such ataxia as still remains should be treated by making the child stand supported by the back of a chair whilst it places each foot separately in various positions. The author suggests wooden curtain rings scattered on the floor, and the patient instructed to tread on them one at a time. The rungs of the chair may also be used for exercises in mounting.

The author has only attempted to indicate the line of treatment which he has found useful. The principles are (1) that suggestion is of service where there is lack of inhibitory control over choreic movements; (2) inhibition when acquired is often exaggerated, and has to be regulated by assistance before voluntary movements can be executed; (3) incoordination has to be treated by exercises carefully graduated in the order of difficulty in their accomplishment.

Treatment by Rest.—In all primary attacks the patients should be absolutely confined to bed. This should be the rule even in mild cases, for they may quickly become severe. The rule is well recognized in cases of articular rheumatism, and should be equally so in chorea, for in both the onset of endocarditis is to be feared. Endocarditis may be arrested or even staved off by enforced rest. The length of time during which confinement to bed is necessary varies according to circumstances. As a general rule no attempt should be made to get the patient out of bed until all spontaneous movements have ceased for at least a week. Also the period of rest depends on the extent to which the heart is implicated. A rapid or irregular pulse, signs of cardiac enlargement, and the presence of shifting bruits, are indications of rest. So much importance need not be attached to the presence of simple mitral regurgitant bruits, unless of recent origin, and provided that other signs of heart disease are absent. In mild cases of recurrent attacks the rule is not so absolute. Rest in bed for a week or two is often sufficient, and then the child may be allowed up for one hour or so out of every three or four. The child's own inclinations in the matter should be consulted. If it frets and rebels at enforced rest it is best to humor it within reasonable limits.

A child may often be in perfect health although suffering from "residual chorea," and such cases do not require treatment by rest.

The treatment by rest may, in fact, be overdone. It has been noticed that children who have been kept in bed for many weeks on account of slight rises of temperature and rapid pulse improve at once when allowed to get up. This applies to convalescence from diseases other than chorea.

Treatment of Asthenic Chorea.—The treatment should be recuperative and stimulant rather than sedative. In severe cases, which, as previously mentioned, are commonly the result of equally severe asthenic chorea, absolute rest in bed is essential, with an abundant and nutritious diet. Brandy should be given freely. Four to six ounces in twenty-four hours is not too much for a child of eight to ten years of age. It is of course necessary to reduce the amount as soon as improvement commences, otherwise a low state of semistupor, with delirium, furred tongue, and subnormal temperature, is apt to be induced. A similar condition of alcoholism sometimes delays convalescence from enteric fever in children. It has been regarded as an indication for giving more stimulants; but, on the contrary, less should be supplied.

Quinine, which in the sthenic cases seems to aggravate the condition, as it often does in epilepsy, is useful in asthenic chorea. Salicylate of quinine when there are muscular pains, cod-liver oil and maltine, nux vomica, and iron when anemia is present,

are better remedies than bromides and sedatives. Arsenic in small doses seems to be always beneficial. There is usually much prostration and emaciation. Massage and mild galvanism (not faradism) will improve the general nutrition.

Passive movements, and exercises under guidance and without, are as useful in these cases as in the sthenic subvarieties. But the rationale is somewhat different; for in asthenic cases voluntary movements are not so much hindered by spasms and ataxia as by inhibition of will-power. Thus one has to teach the patient to use his limbs little by little, just as one coaxes a patient suffering from hysterical paralysis to do so. The milder asthenic cases require treatment on similar lines, namely, tonics, exercises, massage, and prescribed amounts of rest in bed. Like cases of residual chorea, they are apt to be very tedious and even chronic unless taken in hand.

Reflex Chorea.—As may be gathered from preceding remarks, any condition that lowers general health may favor the flourishing of the diplococcus rheumaticus, and so give rise to chorea. Hence in every case of chorea the presence of errors of refraction, nasopharyngeal diseases, defective teeth, gastrointestinal disturbance, parasites both internal and external, genito-urinary affections, and all sources of mental distress, must be sought and treated, or removed if found. It is not contended that immediate relief is thereby procured, but so long as such conditions exist the course of chorea may be protracted.

In conclusion, it may be hoped that the discovery of the diplococcus rheumaticus will lead ere long to the treatment, rendering all present methods antiquated, yet not, it is believed, entirely obsolete.

CARDIAC DRUGS AND THE VASOMOTOR TREATMENT.

SAHLI states in the *Medical Press and Circular* of May 29, 1901, that the object of pathology should be the careful study of the functional troubles which give rise to disease, so that, with a clearer knowledge of the action of remedies, we may in each case prescribe the treatment which is most suitable in the complaint we have to deal with. The numerous failures, often inexplicable, that occur in the use of the best known cardiac remedies, such as digitalis or caffeine, are generally due to an inadequate diagnosis of the nature of the physiological disturbances which we are called upon to treat.

Since venous stasis or the different varieties of passive congestion constitute the principal indications for the use of cardiac and vasomotor remedies, it is absolutely necessary to go to the very root of the general pathology of the congestive states. The distinctive character of venous stasis is the slowing down of the circulation in the aorta, in consequence of which there is a diminution in the quantity of blood passing through the capillaries in the unit of time, and an unequal distribution of the blood in the organism. We must distinguish between the different varieties of stasis:

1. Cardiac stasis, which is caused either by weakening of the ventricular systole, or by a mechanical obstacle to the diastolic expansion of the ventricle, such as pericardial effusion. This latter variety is characterized by congestion of the pulmonary vessels and the veins of the general circulation, and also by anemia of the arteries and capillaries.

2. Pulmonary or respiratory stasis, which is the result of an affection of the respiratory organs—emphysema, kyphoscoliosis, pulmonary sclerosis, bronchial asthma, capillary bronchitis, and pleuritic effusion. In this case it is caused by an obstacle either to the systole of the right heart or to the diastolic expansion of the heart due to enhanced intrathoracic pressure. The symptoms of this variety of stasis are the same as those of the preceding form. In both arterial tension is generally diminished, though it may, however, be increased when arterial resistance is augmented. It is proposed, therefore, to distinguish high tension stasis from stasis associated with diminished arterial tension.

3. In vasomotor stasis, which is due to marked dilatation in the capillaries of the general circulation, the result of which is an insufficient supply of blood in the heart during diastole, even when this organ performs its functions normally, arterial as well as venous tension is reduced. The symptoms of this variety of stasis are cyanosis, oliguria, and a feeble pulse, but edema is generally absent.

4. Splanchnic stasis, which bears more particularly on the abdominal vessels. Patients who develop this form of stasis are pale rather than cyanotic; they give one the impression of hemorrhagic pallor. This

variety may either occur alone, or as a complication of grave cardiac stasis, such as one observes especially as the result of aortic regurgitation, and the prognosis is unfavorable.

From a therapeutic point of view it is advisable to diagnose the form of stasis directly the first symptoms appear (quickened pulse, traces of edema, diminution of urinary secretion, overfilling of the jugular veins, etc.), without waiting for the complete development of the clinical picture.

With regard to treatment, the first question that arises is whether digitalis is indicated in the treatment of all the forms of stasis mentioned above, or whether certain distinctions ought to be made. Digitalis acts in cardiac stasis by reenforcing systolic contraction of the ventricle. It is also efficacious against certain obstacles to the diastolic expansion of the heart by strengthening diastole and by encouraging ventricular aspiration. This treatment is also useful in vasomotor stasis, in which it also tends to enhance ventricular aspiration, and in addition to this acts directly on the heart, which is also generally involved, either directly by the morbid influence which is acting on the vessels, or indirectly, owing to the circulatory inadequacy. Recourse to digitalis is, therefore, indicated in all forms of generalized stasis. It ought, however, to be prescribed with discrimination, and we must remember that there are conditions in which camphor or caffeine, owing to their energetic action on the vasomotors, should be administered in preference to digitalis. It has also been observed that even in cases of stasis accompanied by a high arterial tension digitalis acts favorably; it does not further increase the tension as might *a priori* be supposed, but, on the contrary, it lowers it.

It is a matter of general observation that the effects of digitalis persist for a long time. This phenomenon is due to the fact that under the influence of this remedy the nutrition of the heart is improved, and the organ works more energetically, a condition which continues after the treatment has been suspended. In other cases the action of digitalis is ephemeral, and it may happen that we only succeed in maintaining to some extent a failing circulation by the continuous administration of the remedy. Among the numerous factors which hinder the action of digitalis there is one which is often overlooked, and this factor might be called essential inadequacy of a valve. This state occurs when the insufficiency has reached a stage which renders any degree of compensation impossible, the quantity of blood regurgitated at each cardiac revolution being such that even a reenforced systole cannot possibly restore the equilibrium of the circulation. Stasis produced by this essential insufficiency is therefore perfectly distinct from that which is caused by a failure in the compensation of an ordinary valvular lesion, and treatment has little or no effect upon it.

The next question we have to ask ourselves is whether digitalis may be prescribed in all cases of valvular disease without taking into consideration the damaged valve. Many authors are opposed to the use of this remedy in aortic regurgitation. The bad results which sometimes follow the administration of digitalis in this condition are above all due to the fact that the physician is generally only called in when the lesion has already assumed the form of an essential lesion, whereas mitral affections, owing to the discomfort which they cause, induce patients to have early recourse to the physician. The author is not inclined to the belief that digitalis prescribed in moderate doses, and at a period when one may still hope for the treatment to have some effect, may be administered with some good effects in aortic regurgitation. With an irregular pulse, due to venous stasis, digitalis regulates the action of the heart. The clinical observations at the disposal of the author are not sufficient to allow him to dogmatize as to the influence of this remedy in other varieties of arrhythmia.

Strophanthus, adonis, convallaria, and squills act in a similar manner to digitalis, and it is open to question whether there is any difference in their action, except in respect of the intensity of their effects.

Caffeine is more especially a vasoconstrictor, and it is, therefore, indicated in the treatment of vasomotor stasis. Clinical observation, moreover, tends to the belief in the direct action of this alkaloid on the cardiac systole. Its dilating influence on the coronary arteries explains the favorable effects which it produces in the treatment of angina pectoris.

The action of camphor is strictly analogous to that of caffeine. In addition to its action on the vasomotor centers and on the respiration function, it appears, according to recent researches, to exert a direct influence on the heart. It is especially useful in

maintaining the vital functions in the course of infectious diseases.

Alcohol does not act directly on the heart. Its chief effect is to relax the vessels; it can also be used advantageously when, in consequence of vascular contraction, arterial resistance is intensified. Its action is, however, too fugitive to allow of its being administered alone; but taken in conjunction with digitalis or caffeine, it acts favorably in cases of stasis accompanied by high tension. It is often of service in angina pectoris. It cannot be recommended for the purpose of strengthening the circulation in infectious diseases, but, on the other hand, it is useful—indispensable, indeed—against febrile shivering or after a bath, when the patients cannot succeed in getting warm again. It is sometimes the chilliness caused by the cardiac debility or by vascular spasm, but it is contraindicated when the feeling of chilliness is accompanied by vasodilatation.

Ether exerts effects similar to those of alcohol, with this difference, that if it be administered by hypodermic injections the pain caused by the injection may provoke certain reflex actions which we must bear in mind.

Experimental observation on the action of nitrites and iodides on the vessels is as yet insufficient to allow of discussing the action of these remedies; nevertheless clinical observation furnishes numerous proofs of their activity.

THE TREATMENT OF CHRONIC PURULENT OTITIS MEDIA.

M'KERNON states in the *Medical News* of May 25, 1901, that in treating a case of chronic purulent otitis media we should have three objects in view: first, the cure of the otorrhea; secondly, the improvement of the hearing; and thirdly, the relief of the distressing subjective sounds present.

In the treatment of the discharge the first cardinal principle is cleanliness, and this can be accomplished in one of two ways. If but little discharge be present, and the patient seen frequently by the surgeon, the existing discharge can easily be removed by mopping the parts with sterilized cotton, wound on a cotton-carrier. After the field has been gone over in this way it should be thoroughly cleansed with some comparatively strong non-irritating germicide or disinfectant, and one which the writer has found beneficial is the following:

℞ Boric acid, gr. xx;
Sol. hydrarg. bichlor., 1:1000, ℥ij;
Spr. vini rect., q. s. ℥j.

The parts are thoroughly cleansed with this solution, and any granular surface is touched with a small cotton-tipped probe, dipped in silver nitrate, of a strength ranging from 20 to 240 grains to the ounce of distilled water. This will, in a large number of cases, so stimulate these structures that by using such treatment two or three times a week a cure will speedily follow. If, on the other hand, the discharge is profuse, then the patient, or whoever is to care for him, must be taught the proper method of syringing the ear, and the treatment carried on by irrigation. Usually a hard-rubber ear syringe with a blunt point or nozzle, holding an ounce of fluid, should be used. In the case of young children it is desirable that the syringe be of soft rubber, in order not to irritate the meatus or canal, and in shape should be like a round bulb, with a long-drawn-out point, through which the fluid passes on its way from the chamber of the syringe to the canal.

A point to be remembered in syringing the ear, and also to be impressed upon the patient or nurse, is to give instructions in all adult cases to grasp the auricle gently between the thumb and fingers of the left hand and draw it upward, backward, and a little outward, thus straightening the meatus and cartilaginous canal, and bringing it on a line with the osseous canal. Otherwise, when we use the syringe, we shall be directing the stream of fluid against the side of the canal wall instead of directly into the lumen of the passage, as drawing the auricle in the manner described will overcome the irregularity at the opening of the canal and allow the nozzle of the syringe to pass into the meatus deeply, with its tip directed downward and forward. In syringing the ears of a child under three years of age, the auricle should be drawn outward and downward, as this position best aids us to overcome the natural curve of the canal at that age. The frequency of irrigation will depend largely upon the character and quantity of the discharge, and at no time must it be allowed to accumulate to any extent in the auditory canal. In an ordinary adult case, it should be cleansed every three or four hours at first, and as the discharge begins to lessen, then diminish the frequency of irrigation to three times a day, or once or twice a day,

and later even to every second or third day. In a child it will be necessary to irrigate more frequently on account of the smallness of the canal and the tendency of the walls at the meatus to lie in contact, thus driving back the secretion. In these cases we should irrigate as frequently as every two hours until we notice a gradual lessening of the discharge, and from this point on diminish the frequency to every three, four, or six hours, depending upon the quantity of the discharge that presents itself each day. It is always well to bear in mind that an ear should be irrigated only frequently enough to keep the discharge from accumulating in the canal, as too frequent irrigation serves to soften, make flabby, and lessen the integrity of the parts, thus prolonging the disease. Only a small amount of force should be used in irrigating an ear, whether the case be a child or adult, and we should never use a cold solution, but one tepid, or slightly warmer, depending upon the amount of comfort given to the patient. The quantity to be used at each irrigation varies anywhere from a quarter of a pint to a pint. Rarely is it necessary at one sitting to use more than the maximum quantity given above.

If irrigation produces, as it sometimes does, disagreeable symptoms, as pain, vertigo, or nausea, and these persist, then no matter how profuse the existing discharge we must cease the irrigation and remove the discharge by frequent mopping, and cleansing with cotton. In all cases after irrigation it is desirable to dry the deeper parts as well as the meatus with cotton.

The various solutions used for syringing the ear have been legion, but only those will be mentioned which the writer has found of value from a clinical standpoint.

A solution of bichloride of mercury, in strength ranging from 1:2000 to 1:5000 in boiled water, is the solution most used, and the one from which we obtain the best results at the present time. A solution of value, and one largely used to-day by the general practitioner, is that of boric acid, of the strength of 20 grains to an ounce of boiled water. As a cleansing solution it answers the purpose very well, but taken from a disinfecting or germicidal standpoint, it leaves much to be desired.

A solution of carbolic acid in sterilized water of the strength of one or two per cent was formerly used. In obstinate cases a weak solution of formaldehyde, 1:1000, is often of service, owing to its active germicidal properties, but even in this strength it has to be discontinued many times, owing to its irritating qualities, and if continued should be used in a much weaker form. A solution of permanganate of potassium, half a drachm of the liquor potassii permanganas in from four to six ounces of sterilized water, is often used to abate the discharge, on account of its strong disinfecting properties, and at the same time it acts as an excellent deodorizer when we have a foul-smelling discharge to treat.

When a certain amount of exfoliated epithelium is found in the discharge, accompanied by a roughened and excoriated condition of the meatus, he has found of the utmost value a one-eighth-per-cent alcoholic solution of salicylic acid of the strength of from one to two drachms of the solution in four ounces of sterilized water, the acid here having a marked healing effect on the excoriated tissue. For simple cleansing purposes, a tepid solution of plain sterilized water will be all that is needed.

In a few of the cases coming under the writer's observation, where the so-called irrigation treatment has been used, they become perceptibly worse, and the discharge increases instead of lessening. When this occurs the patient, or whoever is caring for the case, must systematically use the dry treatment just spoken of above, in order to obtain the beneficial results desired.

TREATMENT OF PANCREATITIS.

In closing an editorial on pancreatitis in the *Medical News* of May 25, 1901, the following views are expressed:

"Whatever may be the status of our ignorance in diagnosing pancreatitis, there is now no longer any question as to the treatment. It is both medical and surgical. Contrary to the too usual state of affairs, we know what to give, how much to give, and why to give calcium chloride. The degenerating fat in the body splits into glycerin and fatty acids—these acids unite with the calcium of the blood, which destroys, or limits, its power of coagulating. Hence calcium chloride in heroic doses is indicated especially in the hemorrhagic form. This term Mr. Mayo-Robson feels has been used too promiscuously. Inflammatory conditions of the pancreas are to be classified like those of any other organ, into chronic, sub-

acute, and acute. The hemorrhagic form is now to be considered a variety of the acute. The surgical treatment is immediate operation with the establishment of drainage. The position and direction of this varies with the chronicity or activity of the case. If it is of long standing, it is best accomplished indirectly by way of the marsupialized gall-bladder; if acute it is through a retroabdominal incision leading to the fat of the left perinephric region.

OPOTHERAPY IN GYNECOLOGY.

JOHN PHILLIPS gives the following views as to the value of glandular therapy in gynecology. He says that opotherapy, which seems a preferable word to organotherapy, was created by Landouzy to designate the science which treats of curative elements found in the "internal secretion" of certain ductless glands. As the latest craze seems to be the treatment by animal extracts it behooves us carefully to consider whether there is any real ground for supposing that such treatment is efficacious, and if so on what lines and in what manner it should be carried out. The three extracts which must be considered would appear to be (1) thyroid extract; (2) ovarian extract; and (3) extract of the mammary gland.

1. In considering the first it need only be said that ample clinical evidence shows that certain nutrition disorders associated with pelvic disturbance are undoubtedly benefited by this treatment; moreover, the dose of the drug is known and its toxic effects are recognized. It is certainly of value in amenorrhea so often found to accompany extreme obesity and as a complication of myxedema; according to some authorities it is beneficial in the hemorrhages of fibroid tumors of the uterus.

2. In considering the treatment by ovarian extract much difficulty must be encountered at the onset, as we are dealing with a drug the dosage and toxic effects of which are so far quite an unknown quantity. Dr. Regis seems to have been one of the earliest authorities to record the use of ovarian juice. He prescribed it in a case of mania following removal of both ovaries and tubes; the result was most successful, although many injections were necessary. Leopold Landau gives his support to this mode of treatment, and since then many original articles (with detailed observations) have been written recommending its adoption in increasingly numerous varieties of female disease.

The methods of administration of ovarian extract appear to be three: (1) that followed by Knauser, who grafted the fresh gland into the peritoneum or under the skin; (2) Brown-Sequard's method by subcutaneous injections of the organic extracts; and (3) the method recommended by Horwitz and others and now in general use—viz., administering the extract by the mouth or the rectum, either in a natural state, in the form of ovarian tablets, or as a glycerin extract. With the thyroid extract both dose and toxic effects are well known, but so far no satisfactory evidence has been brought forward as to the effects of ovarian extract. Five-grain tablets have been given as a rule thrice daily, and as many as three tablets thrice daily have been prescribed without any toxic effects or any amelioration of the symptoms arising. Jayle has observed zona and Schuster general urticaria after prolonged ingestion of ovarian extract. The author saw one case of the latter of which there was no doubt, but is strongly of the opinion that the rash was due not to the drug but to some impurity in the vehicle of administration.

Ovarian extract has been given in many diseases (often experimentally), but in none have any definitely satisfactory results been obtained, with the exception of the natural and the artificially induced menopause. In eight cases of menopause the distressing headaches and flushes were certainly relieved, but whether this was the possible result of suggestion or not is not stated; Krusen, after three and a half years' experience, is of a somewhat similar opinion. He says that in the treatment of amenorrhea and dysmenorrhea it is useless, and he noticed no appreciable result in its exhibition during the natural menopause. He thinks that the best results in opotherapy are attained by the use of the thyroid and adrenal glands, and that the ovary in function is in no sense analogous to these organs. Julien finds the drug, on the contrary, of great value in postoperative menopausal symptoms, in amenorrhea, dysmenorrhea, anemia and chlorosis, and osteomalacia. He gives full notes of forty-one cases in support of his assertions.

3. The administration of mammary extract is surrounded by still greater uncer-

tainty. It is best given in the raw state, cow's udder being cut into thin slices and made into a salad. This method has been frequently prescribed and carried out by Freudenberg. No toxic or other effects beyond a suspicion of improvement in lactation during its ingestion have been recorded.

SANTONIN (SANTONIC ACID) IN TABETIC PAINS.

NEGRO *(Giorn. d. r. Accad. di Med. di Torino,* February, 1901) has tried santonin with success in the treatment of the lightning pains of tabes. Of the eleven cases in which the drug was tried, eight were decidedly relieved, two temporarily relieved, and one unaffected. At first the author gave 15 grains in three doses at intervals of three hours, and in subsequent attacks began with 10 grains, 5 grains five hours later. The pain got decidedly less in three hours after the first dose, and completely ceased two hours after the second dose. So far the author has only administered it during the crisis, not in the intervals. In one case it gave relief when a mixture of antipyrin and phenacetine had proved futile. None of the patients had this treatment more than four or five times in the course of two or three months.—*British Medical Journal,* May 18, 1901.

OSSICULECTOMY FOR CHRONIC SUPPURATIVE OTITIS MEDIA.

STUCHY gives the following advice in the *New York Medical Journal* of May 25, 1901. He reminds us that chronic suppuration leads inevitably to necrosis sooner or later, and the fact must not be lost sight of that dead bone in the tympanic cavity, more than in any other part of the body, is apt to produce disastrous results. The method of operation for removal of the drum membrane and the ossicles is so accurately described in the text-books and so thoroughly known that no reference to technique is needed. In only two of the twenty-nine cases of operation was the stapes removed. In none had the disease existed less than seven years.

Given a case of chronic suppuration which has existed for years, if dirty granulation, blocking a perforation through Shrapnell's membrane, the drum remnant soggy, is found, and the probe reveals roughness indicative of necrosis of the malleus or anvil, or both, the hands of the surgeon are tied until the necrotic ossicles and part or all of the tympanic membrane are removed and the cavity thoroughly curetted. When this is done, and the anterior attic wall is removed, we have the free drainage, and can make remedial applications, which could not be done otherwise. The writer would not be understood as advocating this procedure in every case of chronic suppuration, for many of these require the radical operation. In all cases in which there is a large or even medium-sized canal and unmistakable evidence of chronic disease of the attic with perforation of Shrapnell's membrane, and all the conditions attending suppuration (with necrosis usually), removal of the ossicles, a portion or all of the anterior attic wall, and remnants of the drum membrane is believed to be the most conservative and satisfactory procedure.

The treatment thus briefly outlined is ably championed by Allport, of Chicago, and Lake, of London. Others eminent in our ranks go a step further and advocate the radical surgical treatment. The writer believes the former should always be resorted to first, because (1) it gives free drainage; (2) it affords an opportunity to successfully combat the suppurative process; (3) it is free from danger to life and health; (4) in a large percentage of cases the disease is arrested, the hearing improved, only rarely made worse; (5) there is no deformity or scar.

The dry treatment is inadequate, because of the débris collecting around the ossicles. Conservative surgery is justified, because this hindrance is removed.

Chronic suppurative cases with cholesteatoma or necrotic destruction of the posterior superior wall of the canal are not benefited by anything short of the radical operation. Within the last three months the writer has been called upon to do the radical operation in two cases of acute inflammatory exacerbations of chronic middle-ear suppuration, one of which had existed for nineteen years. The son of a physician, the patient had been treated at short intervals during the entire time, and had been advised to submit to a radical operation, but had declined.

When he saw him he had been suffering great pain for several days. The usual remedies—the hot douche, the hot-water bag, and opiates—had given only partial re-

lief, and he was ready now to submit to any surgical treatment that promised relief. The mastoid was swollen and tender, the pulse quick, and the temperature 102.2° F. Inspection with the speculum through an unusually large canal showed remnants of the perforated soggy drumhead and the cavity filled with granulations. He advised the intratympanic operation, suggesting that if that did not relieve all the symptoms in a few hours the radical procedure could easily be resorted to. To this he consented. The granulations and débris were cleaned out, parts of the malleus and incus were found, and the attic and the walls of the cavity were curetted. The patient made a rapid, uneventful, and satisfactory recovery in less time than usual after the radical operation. He feels and hears better than for a long time. This case seems a fair illustration of the value of this plan.

TREATMENT OF CROUPOUS PNEUMONIA.

In the *American Journal of the Medical Sciences* for June, 1901, G. M. MORRIS gives the following summary of treatment in five hundred cases of pneumonia treated at the Pennsylvania Hospital.

The treatment has been expectant and symptomatic. Venesection in sthenic cases to overcome cyanosis or marked dyspnea has proved of great benefit. Wet or dry cups and the ice-bag have been found useful for the relief of pleuritic pain. A mercurial laxative at the onset and the free use of opium to allay erethism, pain, excessive cough, and to procure sleep, have been seldom omitted. Ammonium carbonate has been employed when bronchitis has been marked and the sputum very tenacious. Hyperpyrexia was occasionally combated by sponging; more usually left untreated. When stimulation was indicated, strychnine, whiskey, spirits of ammonia, nitroglycerin, camphorated oil, caffeine or digitalis were ordered. Oxygen inhalations were apparently the means of tiding a number of cases over the critical period. Transfusion in connection with bleeding was occasionally resorted to in cases where toxemia was great.

While it has repeatedly been shown that a satisfactory number of acute pneumonias in healthy people of not too advanced age will recover without any treatment whatever, yet it is equally certain that much can be done to alleviate suffering, which, as much as healing itself, is the duty of the physician.

If we have thus far failed in our quest of a specific treatment, if we have not succeeded in diminishing the frequency of the disease, if we have been unable to reduce the fatalities below the number that confronted our forefathers, we have at least learned a few things which we ought not to do, and we still have before us the future, promise-laden, with the vast and as yet but little explored fields of prophylaxis and serumtherapy within its boundaries.

PRACTICAL THOUGHTS ON PULMONARY TUBERCULOSIS.

U. S. ANDERS gives the following advice in *American Medicine* of June 1, 1901:

Postural Alleviation of Cough.—It is a common observation that the cough of consumptives is worse on lying down. A distinct improvement may be gained so that the patient may have additional relief in the avoidance of sleepless nights, by assuming the extreme flat dorsal decubitus for short periods several times during the day, and practicing deep breathing exercises. This may be combined occasionally with naked sunning. In this manner the pulmonary circulation may be influenced and the lungs trained, so to speak, to be less irritable at night, so that cough may not be easily provoked; just as the bowels may similarly become less responsive to the will from the habit of regular voluntary solicitations to action.

Medication.—This is so generally well known, and the resources are so many—too many, in fact, for the little good gained and the many stomachs deranged—that mention is made of but two drugs, seldom referred to, that have proven of distinct value in some cases. They are aromatic oils —the oil of sandalwood and the oil of erigeron. The first, in ten-drop doses on sugar, every three or four hours, or as needed, when the cough is unusually distressing, has seemed to afford much relief for this symptom, especially in the earlier stages of the disease; the latter, a much-neglected drug, has, it is asserted, been of decided benefit in the hemoptysis of tuberculosis, administered in five-minim capsules every two, three, or four hours. Only recently, in a case of acute pneumonic tuberculosis with moderately profuse hemorrhages from

the lungs, a most gratifying response was obtained.

In the discussion on tuberculosis which led to the writing of this article, Dr. R. G. Curtin did not refer to these oils, and yet it is to his suggestive experience of some ten or twelve years ago that the author owes his first ideas regarding their therapeutic value.

Chest Strapping.—In several cases of tuberculosis where the cough is apparently excited to a large degree by pleuritis, considerable relief is obtained by strapping the affected side with adhesive plaster, as for fractured ribs.

Olive Oil.—As a substitute for emulsified cod-liver oil, or even other animal fats, as cream and butter, olive oil has been found most desirable, palatable, and digestible. It keeps well, may readily be taken with celery or lettuce salad, or soaked up with day-old whole-wheat bread, and is not so apt to cause eructations, nausea, and indigestion.

REMOVAL OF POWDER STAINS WITH HYDROGEN DIOXIDE.

American Medicine tells us in its issue of June 1, 1901, that CLARK advises the method suggested by Dr. J. Neely Rhoads of removing powder stains with hydrogen dioxide. A boy came to the office of Dr. Clark with severe powder burn of whole face and neck. They cleaned him up thoroughly and removed several grains of powder from each eye, but the face was black with stains and embedded particles of powder. He was sent to the City Hospital on account of the injury to the eyes, and orders were given to keep the face covered with pieces of lint saturated with gylcerin 1 part, and hydrogen dioxide 3 parts. A couple of days saw the complete removal of all the particles and stains, without any of the tedious and painful picking processes usually resorted to; and all marks promptly healed.

SUPERHEATED AIR IN THE THERAPEUTICS OF CHRONIC CATARRHAL OTITIS MEDIA.

The *Medical Record* of June 1, 1901, contains an article by HOPKINS in which he has this to say about the treatment of otitis. According to his method the ear was thoroughly cleansed with alcohol for several days before treatment was instituted. The patient was then seated in a comfortable chair, the ear examined and found perfectly clean. Narrow strips of dry gauze were packed into the ear, and a large pad of dry gauze placed over the ear. The ear was then covered with a canvas-sleeve hot-air conductor, and a current of air sent into the canal at a temperature which gradually attained 400° F.

The temperature was easily borne, if gradually increased, until a high point was reached, the only discomfort attending the treatment arising from a severe headache which always followed it, but which was promptly relieved by a dose of codeine.

Following the hot-air treatment, the Eustachian tube was always inflated with a warm stimulating vapor from a nebulizer, vibratory massage with the nebulizer completing the treatment.

The patient was not allowed to leave the office for a half-hour after treatment, and the ear was tightly packed with warm cotton before he went out.

The nose and pharynx received appropriate treatment with antiseptic washes, etc.

Treatments were continued on alternate days for three months, at the end of which time he could hear the watch tick distinctly at thirty-four inches, and surprised his friends by invariably replying to their whispered references to him.

The right ear was then similarly treated, and in ten weeks an equally good result was secured.

Examination showed that the ears were normal in appearance. The patient was discharged January 6, 1897, and careful tests made at frequent intervals since have shown no tendency to recurrence.

During the four years subsequent to this experiment the writer has treated sixty-two characteristic cases of this disease with but four failures, and these occurred in very old people, all of whom had extensive labyrinthine involvement.

It may have been the author's fortune to find cases which were especially amenable to this treatment, but it is believed any physician who will study the technique closely can secure fully as good results. As to the philosophy of this treatment, little can be said at this time.

The intense heat seems to stimulate the circulation through the blood-supply on the posterior side of the manubrium, causing absorption of the articular deposits; removing atrophy and relieving the rigidity of the

tensor tympani. The ossicles lie so near the surface that they receive the full benefit of heat applied to the tympanum, and adhesions between portions of the ossicular chain and the adjoining bony walls of the middle ear are readily removed.

Naturally much better results are secured in the same period of time in hypertrophic cases than in those characterized by hyperplasia; but many cases of the latter type, which would ordinarily have been regarded as hopeless, have gradually improved under this treatment until marked benefit was secured.

The writer has always regarded as contraindications to the employment of this treatment: (1) Arteriosclerosis; (2) serous effusion into the tympanum; and (3) perforations of the tympanum. More recently he has treated several cases in which small perforations existed without meeting with any difficulty, but ordinarily it would be advisable to exercise unusual care in treating such cases by this method. Aside from the headaches previously mentioned, there have been no troublesome after-effects to require attention. Such accessory forms of treatment as may be indicated should not be neglected.

For generating the necessary superheated air, the writer uses a simple room-heater operating either by gas or oil, and having a funnel-shaped top, which sends the hot air through the canvas sleeve to the ear under treatment.

A few points in the construction of this device are important: (1) There must be sufficient draught to secure perfect combustion, without having an excessive draught, which wastes heat; and (2) there must be at least one perforation in the canvas sleeve near the point of contact with the ear, or the dead-air space present will prevent hot air from reaching the ear.

The gauze packing within and over the ear takes up all moisture as rapidly as formed, preventing burning and making the application of very high temperature easy and without discomfort.

Although it is difficult to introduce currents of hot air to a cavity like the ear, which is open at only one end, if the above mentioned precautions are observed no difficulty will be experienced.

THE TREATMENT OF PUERPERAL ECLAMPSIA BY SALINE DIURETIC INFUSIONS.

JARDINE, who has already made several contributions to this subject in the British journals, writes another article upon it in *The Lancet* of June 15, 1901. He says that if it is admitted that we have a toxic substance in the system the aim of our treatment should surely be either to administer an antidote, or else to clear the substance from the system as quickly and as effectually as possible. As we do not know what the substance is we are unable to furnish an antidote. The method of treatment adopted by the author is one which aims at clearing the system of deleterious substances through the natural channels—*i. e.*, through the bowels, the skin, and the kidneys. This, it is believed, is more rational than giving drugs to check the fits. If we can remove the cause the fits will soon cease.

If we were able to keep all pregnant women under observation and to treat all cases of albuminuria by milk diet, saline purges, and diuretics, eclampsia would be practically unknown. We have all seen cases rescued from convulsions by prompt treatment. In two cases under treatment for a month, one in private practice and the other in hospital, there was marked edema and severe headache and the urine was solid on boiling. With daily purging with salts and the administration of milk diet and diuretics both patients went to full time, and were delivered of live children. In one case the child showed albumin in the urine, and in the other there was no opportunity of examining the urine, but the child suffered from marked edema of the arms and legs for about ten days. In that case the salts had evidently purged the fetus *in utero*, as the liquor amnii was like thin tar.

When the fits have commenced we have no time to spare. Absorption through the alimentary canal is largely in abeyance. To move the bowels very large doses of medicine are necessary. A hypodermic purgative would be most useful, but unfortunately we do not possess one. Croton oil, which is so useful in other cases, often fails here. Five minims has been given without any effect, and the author reports that œdema glottidis has been caused twice by it. From one to three ounces of Epsom salts given through a stomach tube, unless the patient is quite conscious, is the purgative which he now uses.

To get a good action of the skin a hot pack or steam bath is most useful. Pilocarpine is too depressing, and if there is edema of the lungs, and there usually is, it may kill the patient.

To act on the kidneys diuretics by the mouth cannot be depended upon. As a rule the patient cannot swallow, and her absorptive powers are very low. Dr. Groces and other writers state that there is no diuretic action after the use of normal saline solution. That may be so, but it is maintained that there is a diuretic effect obtained when in addition to the normal saline solution acetate of soda or bicarbonate of potash is used. It is perfectly true that it is the second or third day before we have a very large amount of urine excreted. In most of the cases which the author has dealt with he states that there has been almost total suppression of urine. After the infusion he as a rule has gotten from two to four or more ounces of urine per hour within the first few hours. Besides flushing the system it dilutes the poison and stimulates the patient. It acts in the same beneficial way as the normal saline solution does in aseptic cases, and it is firmly believed that it has an effect in controlling the fits. The cases which have been treated without any drugs to control the fits have done quite as well as have those in which the drugs were given. A short time ago the writer reported a case in the *British Medical Journal* in which the patient had had twenty-two fits. They were recurring so quickly that she had three during the time the nurses were washing her. After the infusion and hot packs she never had another. As she had been delivered twelve hours it was not a case in which the emptying of the uterus had relieved her.

The infusions are given under the breast or into the abdominal wall. A medium-sized Potain's trocar and cannula with three or four feet of tubing and a funnel is the apparatus used. A very convenient one has been fitted up by Messrs. Gardner of Edinburgh. The apparatus should be sterilized and the skin thoroughly cleansed. From one to three pints can be run in under the breast in a few minutes. The puncture should be covered with strapping. With ordinary precautions there is no fear of sepsis. The author has given over 200 infusions, and has never seen any bad effects. There is considerable tension in the part, but absorption is so quick that this is soon relieved. If necessary the infusion may be repeated several times. As soon as the patient can swallow, milk should be freely administered.

As regards controlling the fits Dr. Jardine has used all the drugs in general use, both alone and in conjunction with the infusions. Morphine, which has given such good results in the hands of some, he states has not given him good results. He is perfectly sure that it lessens excretion from the kidney, and his experience is leading him to give up antispasmodics.

For some time he has been considering the advisability of administering oxygen in bad cases, and intends giving it a trial. One would imagine that it ought to do good, and at least it can do no harm.

The obstetrical treatment has varied very much in different hands. The most difficult cases to deal with are those in which labor has not come on. The uterus should be left alone unless the fits continue in rapid succession. If the cervix is at all rigid incision is preferable to forced dilatation. Cæsarian section has been advocated for such cases, but the results have been exceedingly bad. By incising the cervix one can deliver as quickly as by Cæsarian section, and the shock is very much less. Any bleeding from the cervix would be beneficial to the patient, and if it is excessive it can easily be controlled by stitches. If the case is well on in labor delivery should be effected at once. In all operative interference the patient should be kept deeply under chloroform to prevent shock.

HEMATURIA FOLLOWING THE ADMINISTRATION OF UROTROPIN.

As all drugs possessing great value must possess power for good and evil it is interesting to read of the following case described by BROWN in the *British Medical Journal* of June 15, 1901. He begins by reminding us that the use of urotropin in enteric fever has been advocated of late by several authorities. Horton-Smith urges the administration of thirty grains daily in all cases throughout the whole course of the fever and during the first three weeks of convalescence, as first suggested by Richardson. In this way he considers it may be possible to prevent urinary complications in the patient, and also the spread of infection to others through the urine. He adds that, taken in such doses and during such a prolonged

period, the drug produces no ill effect beyond some urethral pain occasionally if the urine be allowed to become concentrated. Neufeld makes a similar plea, saying that urotropin is almost invariably well borne. Suter states that doses of from 15 to 25 grains a day can be given for weeks in succession. Mogli certainly reports a burning and appearance of red blood-corpuscles in the urine following the use of the drug in cases of cystitis of gonorrheal origin; but he employed much larger doses than those recommended above, giving 6 grammes (or 92.6 grains) a day. The drug, though of undoubted value, is not quite so free from injurious effects as has been taught.

The occurrence of hematuria in two cases of Dr. Brown admitted on successive days after urotropin had been given for eight days, and its rapid subsidence after the drug was stopped, is too striking to be a mere coincidence. Hematuria resulting from nephritis in enteric fever is not unknown, but in such cases urotropin appears to be beneficial. In the cases reported by Dr. Brown the bladder seems to have been the source of hemorrhage.

This untoward effect of urotropin cannot be common. Out of eighty-two cases of enteric fever treated at the Metropolitan Hospital during the last winter urotropin was given in thirteen. In one of these hematuria occurred, but the patient was taking turpentine at the same time.

Discomfort, which preceded the hematuria in both cases, should be considered a danger-signal when employing urotropin, in the opinion of Dr. Brown.

A FATAL CASE OF HEMATOPORPHYRINURIA FROM THE USE OF SULPHONAL.

WALDO reports the following case illustrating the necessity of care in the administration of sulphonal:

A male patient, aged thirty-three, single, one of those unfortunate people not obliged to do anything, consulted me for dyspepsia and giddiness. He fancied he could not sleep, and so had been in the habit for some years of taking hypnotics of different kinds, but chiefly sulphonal. A few days later he developed much pain and tenderness over the stomach, attended with nausea, vomiting, and constipation. He was at the same time slightly delirious at night (no drugs were taken), and he gradually passed into a condition resembling delirium tremens. The gastritis entirely passed off, and in ten days he was able to take a fair amount of food by the mouth. A few days from the onset of his illness it was noticed that his urine resembled port wine in appearance, and smelt like chlorodyne, while another specimen smelt like celery. The fetor was most disagreeable, and resembled that noticed in chronic renal disease.

The urine contained no albumin, and the guaiacum test gave no sign of blood. The microscope showed nothing but a few crystals of uric acid. The spectroscope showed bands corresponding to those produced by hematoporphyrin. The radial artery was a little thickened, and the pulse, which was 80 per minute at the beginning of his illness, gradually increased to 180. He became tremulous, restless, and violent. This was succeeded by a vacant aspect and prostration, in fact, by general paresis, in which the sphincters participated. Although skilfully nursed, a bed-sore formed over the sacrum. The temperature varied from 99° to 104.4°. The retinæ appeared to be normal. The patient could not swallow, but retained ample nourishment given through a nasal tube. The abdomen was sunken, and the diaphragm scarcely moved.

Four days before death general convulsions occurred, which were epileptic in character, and continued at short intervals till the end. During this time the patient was unconscious, quite pulseless, and a very feeble heart sound, only audible at the lower part of the sternum, was all that indicated cardiac action. No urine was passed for forty-eight hours, and the bladder appeared to be empty. No headache was complained of all through the illness, which consisted of ten days of symptoms of acute gastric irritation, and two weeks with cerebrospinal symptoms and progressive toxic paresis. No post-mortem examination could be obtained.

Hematoporphyrin has been observed in the urine in small quantities only where no sulphonal has been taken, as well as in the course of other diseases, namely, rheumatism, pneumonia, enteric fever, and peritonitis. In the sulphonal cases the symptoms are said to depend not so much on the direct action of the sulphonal itself as on chemical changes, almost certainly alimentary in the first place, and probably hepatic, of which the sulphonal has been the exciting cause.

Dr. Keith Campbell, who published a fatal

case of hematoporphyrinuria in the *Journal of Mental Science* for April, 1898, where only 30 grains of sulphonal had been taken in two doses, says that the pathological changes which produce this pigment are as yet obscure.

Professor Young, F.R.S., of University College, Bristol, and Mr. Stoddart, public analyst for Bristol, England, state that the spectroscope is the most reliable means of detecting hematoporphyrin in urine.

Prof. Stanley Kent, of University College, Bristol, and bacteriologist to the Bristol Royal Infirmary, made the following remarks: "Hematoporphyrin as prepared in the laboratory exhibits two different spectra, according to whether the solution examined is acid or alkaline in reaction. . . . When the bands of hematoporphyrin are visible in a pathological urine, the spectrum seen is not that of the acid modification of the pigment, such as would have been expected from the fact that the urine is an acid fluid, but that of the alkaline modification; but a solution of the pigment showing the acid spectrum, if added to urine, at once changes its character, and shows the alkaline bands. . . . Another interesting point is that this pigment is iron-free, that it is probably produced from the pigment of the blood, which contains iron, and that its appearance in the urine seems sometimes to be associated with derangement of the functions of the liver and spleen, organs normally concerned in the pigment metabolism of the body."

The epithelial cells in the cortices of the suprarenal capsules have been shown by Dr. W. F. Robertson to have undergone a marked degenerative change over numerous large areas, consisting of the replacement of the protoplasm by clear globules. These globules, which varied considerably in size, did not give a fatty reaction with osmic acid. There was no evidence of any tuberculous disease. These degenerative changes are evidently the same as those that are so commonly to be observed in the adrenal epithelium in various diseases. Yet it has been suggested that suprarenal extract should be given.—*British Medical Journal*, June 15, 1901.

BAD EFFECTS OF CAMPHOR.

F. BOHLEN *(Deutsche Medicinische Wochenschrift*, May 16, 1901) reports two cases in which marked delirium followed moderate-sized medicinal doses of camphor. The first was a man with compensated heart disease, in whom the pulse was very small and thready, and a catarrh of the lungs was present. Three-fourths of a grain of powdered camphor was given every two hours. In the second case the patient was a woman, who was suffering from heart symptoms following an attack of influenza. The same dose was given to her. After thirty-six hours the man had received nine and three-quarter grains, and the woman nine grains. The effect on the hearts had been very satisfactory, but an intractable delirium had set in in both cases. At first this was not ascribed to the drug, which was continued. Bromine was given to quiet the condition, without success. After three days it occurred to Bohlen that the camphor might be responsible for the delirium; he therefore discontinued the powder and gave bromide alone, and was gratified by seeing the disagreeable symptoms disappear very shortly.

THE TREATMENT OF RETROVERSION OF THE UTERUS.

MACNAUGHTON JONES states in the *Medical Press and Circular* of May 10, 1901, that every mobile and irreducible uterus, or a reducible uterus in which the associated conditions, either in the uterus itself, in contracting peritoneal folds, or in adnexal adhesions, makes it clear that no pessary will effect a cure or enable the uterus even temporarily to remain in the normal position, should be treated by operation, the nature of which should depend on the age and childbearing prospects of the woman; on the amount of adnexal disease and the need there may be for radical interference; on the condition of the vaginal outlet and perineum; such complications as cystocele or rectocele; and, lastly, on the extent of uterine disease that is coexistent with a displacement, such as metritis, endometritis, or lacerations.

With regard to a pessary it should always be molded to fit the particular anatomical peculiarities of the case in which it is applied. The author prefers the celluloid with wire rings from which they are quickly molded out of hot water. They are but various adaptations of the Smith-Hodge, and generally answer the purpose. He has had made a new celluloid cushion pessary. The soft Smith-Hodge pessary of Robert Barnes, with a glycerin pad behind, is also believed to be a most useful one, and he

says there is no pessary that more efficiently, if as perfectly, keeps the uterus, after its first replacement, in position than the vulcanite Fowler. In some cases of retroversion with anteflexion, or with the anterior wall enlarged from any cause, a well curved Galabin's support is most useful. For wearing finally, after the uterus has been maintained for a given time in position, the glycerin ring is admirable. A well fitting pessary should neither be immovable in the vagina, nor loose enough to change its position under the ordinary demands of the patient's life. It should not interfere with the rectum or bladder, nor should it press on the urethra. It should be comfortable, both in walking and when the patient is sitting. It should be of a material easily kept clean, should not be worn when roughened on the surface or corroded, should have no apertures or cracks, and be capable of being removed and, where possible, inserted by the patient herself.

The author expresses his opinion that a very large proportion of cases of retroflexion can be treated and cured by the aid of a pessary (he has altogether abandoned the use of stems); that a smaller number, assuming that the patient may have opportunity and time to avail of treatment, can be cured not only of the displacement, but of its complications, in the same manner. There then remains a proportion of cases which may be divided into two classes. The first embraces those in which the mere replacement of the womb is only part of the cure, and who cannot afford the time for the necessary manipulative or other treatment needed to perfect it. The second includes all cases in which, either from the nature of the displacement or its complications, we cannot hope for a satisfactory result from any mechanical manipulative or other non-operative treatment. In both these classes operation is indicated.

He admits that by prolonged and persevering treatment by local absorbents, massage, the assistance of posture, curettage, and a pessary, he has frequently treated and completely cured cases that at first appeared almost incurable, and knows of many patients who thus suffered who are now strong and healthy women and have borne children.

But recalling the numbers in whom there was no such satisfactory issue, the time, the suffering, and inconvenience involved in the process, he would not now submit them to the same treatment, but would advise operation.

It has only been during comparatively recent years that the writer has held these decided views with regard to operation. This, however, may be readily accounted for by the fact that his practice was, during the earlier years when operative interference was advocated, chiefly limited to those who could afford a prolonged period of treatment, and at a time when the uncertainty of the published results made him chary in advising operation. He has, however, during late years, acted on the principles already stated, and advised operation in certain cases, and where consent has been given has carried it out; and as far as his knowledge extends, in every instance up to the present time the result has been satisfactory, and he has had no ill consequence from any operation.

These operations, with the exception of one of Alexander's (in which case suspension of the uterus was afterward performed) and one vaginal fixation, in both of which the patients have since borne children, have been all by ventrofixation or suspension (Kelly), the uterus being fixed either to the fascia and peritoneum or to the peritoneum and subperitoneal fascia alone. Some had either resection of the ovaries or removal of an ovary or ovaries carried out at the same time.

THE MUSTARD BATH IN FUNCTIONAL CYANOSIS OF THE NEW-BORN.

In all probability many a practitioner has resorted to the mustard bath in cases of sudden depression in infants, from whatever cause. Cyanosis, with death imminent, to all appearances is an accident that sometimes happens to a new-born infant, and that, too, in the opinion of Dr. Adrien Besson, without atelectasis of the lungs or other organic disease. At a recent meeting of the Lille Anatomoclinical Society (*Journal des Sciences Médicales de Lille*, May 11, 1901), he reported three cases in which the mustard bath had proved promptly efficient and the dangerous condition had not recurred. It is always well to bear simple remedies in mind.—*New York Medical Journal*, June 29, 1901.

ARSENIC AS A STIMULANT OF NUTRITION.

The *New York Medical Journal* of June 29, 1901, says editorially that the recent great "epidemic" of chronic arsenical poisoning in England has at last served the good purpose of supplying a large field for the study of the effects of arsenic in healthy persons, and the literature of the drug has in consequence been notably enriched. Among the articles that have appeared, we recall none more valuable than that contributed to the April number of the *British Journal of Dermatology*, by H. G. Brooke, physician to the Manchester and Salford Hospital for Skin Diseases, and Leslie Roberts, honorary dermatologist to the Liverpool Royal Infirmary. These gentlemen deal with the subject systematically, and their article is well worthy of careful study in its entirety. Except for one aspect of it, that in which the action of arsenic on nutrition is considered, our restricted space forbids our attempting to summarize it, although we may call attention to two general statements of interest, namely, that female patients predominated among those who sought hospital treatment, although the women of the lower laboring class in the district consume less beer than the men of the same class, which tends to show that women are more susceptible than men to the action of arsenic; and that the poisonous effects upon the nervous system and those upon the integument were rarely well marked in one and the same individual.

As to the action of arsenic on nutrition, the authors think it stimulates that of certain cells beyond their capability of endurance, so that they perish. They think their observations afford strong evidence in support of the view, put forth by Binz and Schulz, that the physiological effects of arsenic are due to the development of ozone within the system. The arsenic-eating habits of many of the Styrian Highlanders, they remark, afford an excellent instance of the tolerance of arsenic by man. The drug is said to improve the complexion of the women and to maintain the strength and spirits of the men under severe physical exertion. In countries where arsenic is found native, they point out, it has long been customary to administer white arsenic to horses with their food, and, it is stated, with much benefit to their coats and their general condition. It is added that sheep are reputed to be very tolerant of arsenic. Arsenic kills some microorganisms, but to others it seems to impart new life. The writers mention the readiness with which mold fungi grow in a solution of potassium arsenite, a fact which has led to the addition of spirit of lavender in the official preparation. They point also to Geiss's observation that young rabbits to which small amounts of arsenic were administered regularly grew to an extraordinary size. The restorative properties of arsenic in certain nervous derangements are well known, and perhaps it may find a place in therapeutics as an actual restorer of tissue elements.

A FEW NOTES ON THE SULPHOCARBOLATES.

In the *Lehigh Valley Medical Magazine* for May, 1901, GREEN extols the use of the sulphocarbolates and recommends that sodium sulphocarbolate be given in doses of from 10 to 30 grains. In Dr. Green's practice, however, he has seldom given more than 5 or 10 grains in each dose. A dose of this size given after meals and at bedtime is very often helpful in cases of intestinal indigestion with flatulence.

Very frequently cascara sagrada is indicated in combination with it because almost all of these patients are more or less troubled with constipation. In many cases the sulphocarbolate can be given with advantage between meals, say at intervals of two hours, in order to correct the flatulence which exists almost constantly throughout the day. This method of administration has been very helpful. It is believed, however, when in pill form, especially with an enteric coating, that the sulphocarbolate is more apt to reach the spot and do its work satisfactorily. For this purpose Parke, Davis & Co. put up four-grain pills of sodium sulphocarbolate, and two and one-half grains with this coating.

Another combination that has seemed to be a useful one is that of acetanilid and sodium sulphocarbolate. It is a well known fact that antifebrin, or acetanilid, is more soluble, and consequently is more rapidly absorbed and therefore more promptly effective, when given in combination with some alkaline salt. Acetanilid was first tried by Dr. Green in combination with sodium sulphocarbolate in the proportion of 85 per cent of the former with 15 per cent of the sodium salt. This was the proportion

in which sodium bicarbonate was originally combined with acetanilid in the manufacture of a well known proprietary product. This combination seemed to work very well, but after a little experimentation a smaller proportion of acetanilid was found to be quite as effective or even more so. The combination finally decided upon was 50 per cent of each in powder form to be given in three- or five-grain doses. This would give in each dose one and a half or two and a half grains. The primary reason for combining the sulphocarbolate with acetanilid was to render the acetanilid more soluble, and also because the sulphocarbolate seemed to be the better corrective of various forms of fermentation. This it seems to have accomplished. And after several years of trial with this combination it is believed that the smaller doses of acetanilid given in this way are quite as effective as the much larger doses that are usually given. It is not a common thing to see a severe headache relieved with five grains of acetanilid. Given with sodium sulphocarbolate, it is a very common experience to find headaches relieved promptly with a five-grain powder of the combination, repeated in a half-hour or hour. So prompt has been the effect very frequently from this combination that patients have asked if the powders did not contain morphine, and this question has been asked when only three-grain powders were being administered. The great advantage of this combination is that one always feels that the acetanilid is being used in a perfectly safe dose.

With regard to the other sulphocarbolates no report is made except concerning the zinc salt. The author has used some of the other salts to some extent, but too little to make any statement with regard to them. Sulphocarbolate of zinc has been so freely used by many of the profession as to need hardly any mention at this time. Its use in dysentery and various diarrheal conditions has been frequently spoken of. When used very extensively in various diarrheal cases, especially those of a chronic nature, it has proved most effective. Mention is made of one case suffering from chronic intestinal catarrh for a number of years, but whose condition could not be relieved by any of the usual remedies. Copper sulphate, copper arsenite, tannic acid, and various other remedies were tried, with no permanent result.

Sulphocarbolate of zinc was finally combined with tannic acid in the treatment of this case. The tannic acid was gradually removed from the treatment. Within a very few weeks the condition of the bowels was entirely corrected, and now after four or five years' interval there has been no return of the diarrheal trouble.

TREATMENT OF PUERPERAL ECLAMPSIA.

SIMPSON says in an article in *The Lancet* of June 29, 1901, that we are apt in this disease as in all others to become empirical in our treatment. A certain line of treatment is very often discredited by the method in which it is employed and carried out, by a want of care and observation on the part of the practitioner in not selecting the proper treatment for the case in question. No special line of treatment is suitable for all cases, inasmuch as many cases of eclampsia will recover speedily with a simple diuretic and diaphoretic mixture and application of heat to the body by means of the hot air or vapor bath, or by the simpler means of hot-water bags, but there are other cases in which this is quite inadequate to produce the desired effect, viz., the cessation of the convulsions. One must then adopt more powerful remedies for ridding the system of the effete matter and for allaying the irritability of the cerebrospinal system. Morphine has been much used of late and has produced good results with different authorities. Lyle records one death in eight cases lately treated in this manner at the Rotunda, giving a death-rate of 12.5 per cent. Fitzgerald records two cases treated with morphine and atropine with successful results. The results with this remedy have certainly proved encouraging. Morphine is a powerful anodyne in allaying the irritability of the cerebrospinal system and so controlling the convulsions, but even with this remedy there are cases where fatal results are likely to follow—*e.g.*, cases of nephritis with renal inadequacy.

It is taught in the text-books of materia medica that opium or its derivatives should not be given in Bright's disease, as it causes convulsions and death. It is possible that this teaching is just as true as it was twenty years ago, notwithstanding the seeming contradiction in treating eclampsia with morphine. It has been asserted by Herman that in the majority of cases of eclampsia the albumin found in the urine is not due to nephritis, but to altered blood-pressure in

the blood-vessels, and when this is so the patient after delivery rapidly recovers and it leaves no evil effects behind; but when the albumin is due to nephritis the condition is much more grave—the kidneys take a much longer time to recover, and the patient is more apt to die than those in the former category. It is just possible that the fatal case recorded by Lyle belonged to the latter class, and that morphine is certain to cause fatal results in nephritic cases. It is important, therefore, carefully to examine the urine quantitatively as well as qualitatively, and should the paraglobulin be in greater proportion than the serum-albumin, then it belongs to the class indicating whether or not morphine should be used.

Pilocarpine is a powerful remedy, but it is distrusted by some. In doses of one-fifth of a grain hypodermically it produces diaphoresis in less than twenty minutes, and in one case of postpartum eclampsia, after diuretics, diaphoretics, chloral, bromide, and chloroform had all had a fair trial without in any way curing the convulsions, it acted in a most happy manner. The patient had no more convulsions after its administration, and none of the bad effects such as profuse salivation, which according to some follow its use, occurred. Others have found pilocarpine to produce the same result. Inglis records a case in which the convulsions ceased immediately after the subcutaneous injection of one-fifth of a grain.

Recently treatment by infusion or transfusion of saline solution, either subcutaneously or intravenously, has been much practiced and advocated. Jardine records twenty-two cases treated in this manner with three deaths, equal to a death-rate of nearly fourteen per cent. Intravenous transfusion is considered bad treatment even in cases of severe postpartum hemorrhage, as saline solutions can be introduced into the circulation with safety by less dangerous methods—*e.g.*, per rectum and subcutaneously. In all cases of eclampsia the less heroic methods are first advocated, and if no good result be obtained then more powerful remedies should be resorted to, preferably pilocarpine in suitable cases.

It is believed that the great dissimilarity in the methods which are adopted and the results which are obtained in the treatment of this complication of the puerperal state are due to the want of method in approaching the treatment of the disease. First of all, if the case permits of this investigation, we must ascertain whether the paraglobulin or serum-albumin is in the greater proportion. If we obtain this comparative analysis then the treatment is easy, but if the practitioner be unable to obtain this data then the simpler methods are advocated—first, diuretics, diaphoretics, bromide, chloral, and chloroform—before resorting to morphine or hypodermoclysis, keeping in mind the safety of the patient above all other things, and the particular treatment as of secondary importance.

If the eclampsia appears in the first months of pregnancy forcible measures in emptying the uterus should be avoided even under chloroform, as one never knows how much damage may be caused to the uterus by this means. Nature is, as a rule, gentle in her methods, therefore the bougie is more likely to act beneficially than forcible emptying of the uterus. It should be kept *in situ* so long as to produce powerful and regular contractions, and then withdrawn, to be reinserted if the pains lag. Venesection is a valuable form of treatment if the patient is plethoric, but to bleed indiscriminately is considered bad treatment.

NITROUS OXIDE ANESTHESIA IN GENERAL SURGERY.

MILLER (*Providence Medical Journal*, April, 1901) says that for the administration of nitrous oxide and ether by the open method, the uncomplicated apparatus consists of an open ether cone and a tank of nitrous oxide, a seven-gallon bag, and an inhaler. The inhaler is so arranged with valves that the patient breathes gas or air at the will of the anesthetist. In operation the valve of the tank is opened and the bag fills with gas. The open cone placed top downward and the other requisites for ether anesthesia are at the anesthetist's right hand. The inhaler is applied to the patient's face, care being taken that it fits closely. The patient is instructed to breathe deeply. After a few free breaths of air the valve is depressed and anesthesia begins. The breathing becomes more rapid. The pulse-rate is increased. In from one to two minutes the nitrous oxide anesthesia is complete, about seven gallons of gas having been consumed. Complete gas anesthesia is indicated by slight cyanosis, superficial respiration, muscular relaxation, and loss of the conjunctival reflex.

While the gas is being administered the anesthetist pours into the ether cone an ounce or two of ether, and as soon as gas anesthesia is complete the inhaler is removed and rapidly replaced by the cone. Ether anesthesia then progresses and is complete in from two to five minutes from the beginning of the gas inhalation.

It is necessary to keep the cone tightly applied during the early part of the operation, as the patient absorbs so little ether that return to consciousness is rapid if etherization is discontinued. This peculiarity of the method is made use of in several ways. For operations of five to ten minutes' duration, it is possible to keep the patient anesthetized for only fifteen or twenty minutes, recovery being rapid and complete, without nausea and vomiting.

In December, 1899, the records of 160 cases of gas-ether anesthesia were collected at the Rhode Island Hospital. The average time required to anesthetize was 3.05 minutes, the shortest period being fifty seconds. Eighty-four per cent of these cases suffered from no nausea or vomiting, and only five per cent were considerably nauseated.

During October, November, and December, 1900, a careful record of all anesthesia was kept. The results are as follows:

Twenty-seven cases of simple ether anesthesia required an average time of 8.2 minutes to anesthetize. The amount of ether used per hour of anesthesia was 10.9 ounces.

Forty-four per cent were not nauseated; thirty per cent suffered greatly from nausea and vomiting.

One hundred and twenty-eight cases of gas-ether anesthesia by the open method required an average time of four minutes to anesthetize. The average amount of ether per hour of anesthesia was 9.7 ounces.

Sixty-three per cent were not nauseated, and only nine per cent suffered considerably from nausea and vomiting.

While undergoing gas-ether anesthesia one patient complained of numbness, one of pain in the chest, and one of a choking sensation. The other 125 had no unpleasant sensations of any sort.

OPERATION ON ESOPHAGEAL STRICTURE BY EXTERNAL INCISION.

LLOBT (quoted in *Centralblatt für Chirurgie,* No. 8, 1901) reports a case of stricture of the esophagus occurring in a girl twenty years old which was reached through the posterior mediastinum. The stricture was placed between eight and nine inches from the teeth. An external and vertical cut was made four fingerbreadths to the left of the mid-dorsal line. A two-inch piece was resected from the fourth, fifth, sixth, seventh, and eighth ribs. The parietal pleura was pushed aside, and the esophagus was reached, the stricture was split, and a soft tube was passed from the nose into the stomach. The author naively states that this procedure was absolutely successful, but that the patient died on the eighth day of suppurative mediastinitis. In another case he would make his cut nearer the middle line, and resect the transverse process of the vertebræ in order to come more directly upon the esophagus.

INDIA'S DEATH BILL FROM NOXIOUS ANIMALS.

The statistics of the Indian Empire, according to the *Medical Press* of March 20, 1901, bring home the responsibility of governing so vast a dependency. The last annual report of the government of India showed that no less than 2966 persons died in the preceding year from the attacks of wild beasts, and 24,621 from snake-bites. The increased number of deaths from the latter cause was partly attributed to the floods, which drove the snakes to the higher ground where the natives dwelt. Tigers killed 899 persons, wolves 238, bears 95, elephants 40, hyenas 27, jackals, crocodiles, and other wild animals 1230. In addition, no fewer than 100,000 head of cattle were killed by predaceous animals, and 9449 by snakes. On the other side of the balance 1570 tigers, 4538 leopards, 2317 wolves, 776 hyenas, and 94,548 snakes were killed. Sir Joseph Fayrer, the great authority on Indian snakes, states that in the treatment of venomous snake-bite the only hope is to prevent the entry of the poison into the circulation by applying a tight bandage where possible and cutting out the bitten part. He appears not to have arrived at any satisfactory conclusion as to why nature should have endowed these creatures with so deadly a poison, which was not wanted for procuring food, since both innocent and poisonous snakes eat the same kind of food and swallow it in exactly the same kind of way. There can be little doubt that sooner or later progressive science will find a satisfactory antidote for the venom of snakes.

THE USE OF THE TUNING-FORK AS A TEST FOR DISEASE OF THE MAXILLARY ANTRUM.

KUYK (*Laryngoscope,* February, 1901) asserts that except by surgical means there is no method of examination of the maxillary antrum which is quite positive or satisfactory, and that even the surgical method of exploratory puncture through the nasal wall will at times fail.

Take, for instance, a case in which the nostrils are occluded by hyperplastic turbinates, with a badly deflected septum, with a malposition of the ostium maxillare preventing, even after the nostrils are rendered patent, direct entrance into the antrum, and yet there are many subjective and objective symptoms of antral disease, perhaps empyema, perhaps a growth of some kind. There is a purulent collection in the nostrils which might come from the frontal sphenoidal sinus or the ethmoid cells. Pain is produced by percussion over the antrum, but the patient is hysterical from attacks of pain, also through fear that something terrible will be done. Transillumination gives a shadow on either side. The patient fears exploratory puncture, in fact declines it.

Here are present the cardinal symptoms of antral disease with a history guiding us direct to that cavity; but how often are histories misleading? The responses to tests are by no means infallible.

A test that is simple, painless, which will remove at least some of the uncertainties existing in these cases, which will give a fair amount of positive evidence, and which will permit a diagnosis to be more easily made, is by using a tuning-fork over the antrum and the teeth, the first and second molars being preferred.

If the antra are free and clear the tuning-fork will be heard with equal distinctness and for a like duration over each side and in either location.

It may not be well to explain to the patient just what is expected of this or any other test.

If one antrum contains fluid the fork will not be heard so distinctly, perhaps very faintly, perhaps not at all, but if the opposite antrum is free the patient replies quickly and positively in the affirmative.

Healthy cases have been thus tested with but slight variation in the result of the findings, but the experience of one person, remarks Kuyk, is barely sufficient upon which to base positive assertions.

This test was used with much satisfaction in a case of frontal sinus disease. It might also be employed in examining for ethmoid disease. It is certain that in disease of the mastoid bone, conduction is much diminished if not altogether destroyed.

UNTOWARD AND FATAL SUBARACHNOID ANESTHESIA.

GOILAV (quoted in *Alienist and Neurologist,* April, 1901) had two old men under observation suffering from senile obliterating arteries, evinced by loss of arterial pulsations, livid skin, and violent itching, so that the patients got no rest either by day or night. There was no albuminuria.

As neither hot baths, iodide of potash, elevation of the limbs, nor injections of morphine had any effect on the pain, Goilav injected a one-per-cent solution of cocaine between the fourth and fifth lumbar vertebræ. Anesthesia ensued in twelve minutes and lasted twenty-four hours. As a result of the injection the patient had headache, nausea, vomiting, intense chills; the pulse and temperature were also elevated. These symptoms lasted for nearly three days, during which time caffeine and ether were repeatedly injected.

In the second case amputation of the leg was decided on, and one and one-half centigrammes of a one-per-cent solution of cocaine was injected between the fourth and fifth vertebræ. Anesthesia followed in fifteen minutes and was perfect. The operation lasted forty minutes, and the patient was then put to bed and surrounded by hot-water bottles. In two hours intense chills came on, the temperature and pulse rose, and in spite of all remedial measures the patient succumbed twenty hours after the operation.

Goilav believes that the intraspinal injection of cocaine is contraindicated in cases of old obliterating arteritis, and that chloroform or ether is not relatively more dangerous than cocaine.

CONGENITAL DISLOCATION OF THE HIP.

STERN (*Cleveland Journal of Medicine,* March, 1901) remarks that the diagnosis of congenital dislocation of the hip is generally easy to make at the first glance. The history dates back to the earliest period of life.

often an injury or nervous shock being advanced as the supposed cause. The patient, after being undressed, should be examined carefully. If the case is bilateral the pelvis will be tilted, and a marked compensating lordosis of the lumbar vertebra present. To assist in this compensation the body is made up of a series of zigzags. The knees and thighs are slightly flexed, the buttocks prominent, the lumbar vetebræ lordotic, the dorsal vertebræ prominent, the shoulders slightly hunched, and the neck thrown back. When standing upon one leg the opposite half of the pelvis sinks down, and when the patient walks the "adduction walk" is plainly noticeable.

Upon laying the patient down the shortening of the dislocated side can be conveniently measured from the anterior superior spine, and by the relation of the trochanter to Nélaton's line, the shortening corresponding to the distance of the trochanter above Nélaton's line. The leg is slightly rotated outward, but all motions, both active and passive, are free. In congenital dislocations the leg can be freely abducted. Upon palpation the fulness and resistance of the head beneath the femoral vessels are missed, and deep palpation in this region will in thin individuals reveal the empty acetabulum. The resistance of the trochanter is found above Nélaton's line, while the head is found posteriorly among the gluteal muscles, and especially when the thigh is flexed its size and position and direction can be easily made out. Upon rotation a slight crepitation can at times be felt, due, Hoffa says, to the absence of ligamentum teres. Upon grasping the thigh and making a firm tension downward, a slight movement of the head can be felt in every case. The amount of downward movement is in some degree a measure of the ease of a bloodless reduction. The Roentgen ray is of course a final court of appeal, and always shows the head to be outside of the acetabulum, generally above and behind it.

In the differential diagnosis, if by any means, palpation or *x*-ray, one can demonstrate an empty acetabulum and the head present in another position, the diagnosis of dislocation is certain, and a differentiation need only be made from traumatic, paralytic, and spontaneous dislocations. To differentiate it from some cases of coxitis, rachitic lordosis, and bow-legs, the above must be demonstrable.

Traumatic dislocations give a history of an injury, the thigh is flexed, the leg adducted and turned inward, and cannot be abducted.

Paralytic luxation always shows a paralysis and atrophy of the muscles about the joint, and the hip can be reduced with great ease.

More difficult is the differentiation from the pathologic spontaneous dislocation, due to previous hip-joint disease. The latter is recognized by the scars of the healed sinuses, the varying degree of ankylosis, and the history of long-continued suppuration. Quite another matter is it when we are dealing with a luxation caused by acute osteomyelitis of infants. Here the head of the bone may be eroded in a few days, and the trouble may disappear without a scar or without an ankylosis. The attacks of pain and inability to walk may come on suddenly and be accompanied by a slight rise in temperature. The fixation and pain on pressure, as in coxitis, are absent.

Rachitic lordosis and bow-legs only simulate the position and appearance of congenital dislocations. The experienced eye has no difficulty in telling the "adduction gait" of a dislocated hip from the rolling, pacer-like walk of a pregnant woman, or of a child with marked bow-legs.

The prognosis for all untreated cases is bad. The children can never outgrow it, and a high shoe tends to make it worse. It is not the physical deformity or the limping which becomes the source of trouble, but the disturbance in walking. Halsted states that thirty-one per cent of all cases suffer severely from pain. This may come on in attacks under the picture of acute hip-joint disease, and totally disable the patient from standing or walking. More commonly the pain begins after walking a short distance, and increases with each step. Dubreuil ascribes this to a traumatic synovitis, due to the constant irritation and strain upon all the soft parts about such a joint. The prognosis is very good. Over ninety per cent of all cases treated in childhood can be fully restored after one or more attempts at treatment.

Hoffa's method of treatment is to lay the joint open as if for resection by means of Langenback's incision, the adductor muscles and those arising from the anterior superior spine and the tuber ischii having first been divided subcutaneously. By means of a periosteal elevator all muscles attached to

the greater and lesser trochanters are freed from their insertions (subperiosteally), and the head of the femur is now projected out of the wound by a forced adduction and pressure upward. It is then trimmed and rounded, and the acetabulum scooped and rounded out with a large Volkmann spoon. The head is placed in the new socket, the wound closed and properly drained, and the leg fixed for four to six weeks. Bradford has lately advocated the sewing up of the capsule, and even performs an osteotomy of the neck to do it. After this a well-fitting corset is applied to press over the trochanters, and massage and gymnastics are pushed vigorously, the patient being taught to walk.

Lorenz early modified Hoffa's procedure by opening the joint in front, and then after scooping out the acetabulum forcing the head down into it, by means of powerful traction, thus saving the muscles.

The bloodless or forcible reduction of Lorenz was the outgrowth of the knowledge of the pathologic conditions, the mechanism of the forcible reduction, and the confidence of a result which Lorenz had gained from his many bloody operations. He learned definite phenomena, definite landmarks, that enabled him to understand and control the different steps in the reduction, without the use of the eye as a guide to foresee and tabulate the various contingencies, and thus raised the procedure to the dignity of a definite operation.

The thigh is flexed and abducted as far as it will go, thus making the adductors quite tense. These are torn from their attachment, for they cause the chief obstacle to the proper amount of abduction necessary for the reduction. This can easily be accomplished by sawing or chopping at the muscles with the edge of the hand just beyond their origin. The thigh is now forcibly extended, either by the operator or by an assistant, using a skein of strong yarn to bring the head of the femur down to the level of the acetabulum. The head is now in the back of the acetabulum and is to be forced upward upon it. To do this the thigh is again flexed and rotated inward, while steady traction is made upon the thigh in a vertical direction. Pressure is made upon the trochanter either with the free hand or by means of a padded wedge placed beneath it. The latter gives the leverage necessary to force the head of the femur to jump over the posterior rim of the acetabulum with a distinct snap, when the flexed and extended thigh is abducted. This snap, which can be heard by the bystander, can be plainly felt by the hand on the leg each time the head jumps over the posterior rim. The head is now upon the acetabulum, or, better, where the acetabulum ought to be; but it has no tendency to stay, being pulled back by the pelvic muscles as soon as the leg is released from the extreme position of flexion, abduction, and inward rotation. To overcome this the hip is redislocated and reduced several times, and the joint rotated and pressed in so as to bore out the acetabulum. By these means a firmer hold is obtained.

The physical signs accompanying a successful reduction are easily demonstrable, and allow of no failure of interpretation. The first of these is the distinct snap felt and heard each time the hip is reduced or redislocated. The thigh has become noticeably longer, the head of the femur can be felt in the groin beneath the femoral muscles, and the knee becomes flexed from the shortening of the hamstring muscles. Upon redislocation these signs disappear.

In the case of old children, when the muscles are tense and the tendons and capsule firmer, a preliminary period of extension may be necessary to bring the head down. Then under narcosis, after the adductors are torn through, the leg is rhythmically stretched by two assistants using the yarn skein slung upon the thigh. Countertraction is made upon the perineum. The operator presses upward on the trochanter and keeps the leg rotated inward, when suddenly the head is upon its acetabulum, and is ready to be made more stable as before. Lorenz designates this latter method as the "reduction over the upper rim," while the former method is "over the posterior rim."

To preserve the position gained, a period of fixation becomes necessary to allow the stretched muscles to relax, and those relaxed to atrophy and shrink, and also for the play of the head of the femur to dig its way so to speak into the tissues about the acetabulum and deepen it. The stumbling-block of all older methods was the fact, in consequence of the attempt at fixation, in a horizontal position, of the leg. that redislocation was bound to occur. When the hip is reduced the thigh is flexed, abducted to 90 degrees or over, and rotated inward, allowing the limb to hang limp over the edge of the table; in this position it stays

there, but on attempting to straighten it out the joint is once more redislocated. Therefore Lorenz fixes the limb in this extreme position with a well-fitting plaster cast, which need not extend higher on the body than just above the iliac crests, and cut out in front to give room for the abdomen. After the first period of pain and restlessness is over the patient is fitted with a high shoe under the reduced and flexed side, and is encouraged and even forced to walk and run about, for in this way the "functional burdening" (as Lorenz says) causes the head of the bone and the acetabulum to conform to each other, and practically produces a new joint, as proven by the *x*-ray. After five to six months the first cast is removed, and the joint tested for its solidity. The leg can now be placed more parallel to its neighbor, and is again encased in plaster in the "indifferent extended position" for about three months. After this the patient is given a higher sole on the *sound* side to preserve a small amount of abduction; this, together with massage, electricity, and gymnastics, completes the cure in from twelve to sixteen months.

Lorenz has performed the bloodless reduction over 591 times with over seventy-five per cent of cures, and but ten per cent of total failures. Between these two percentages lie a great number of cases in which the anatomic result has miscarried, but the functional result as regards endurance and symmetry of locomotion is most excellent. The lordosis disappears, with the waddling gait or limp, the legs are of equal length, and the buttocks assume their normal shape. The operation has slowly gained advocates in all countries, until today the majority of orthopedic surgeons have adopted it.

Stern, in conclusion, sums up his paper by saying that congenital dislocation of the hip is much more common than would be supposed from the meager reports we have of cases coming for treatment. The etiology is unknown, probably heredity; the symptoms and differential diagnosis are clear and well-defined; the prognosis of untreated cases is bad, but when taken in time it can be cured. In every case it is the doctor's duty to insist upon a reduction being done, and to perform the "forcible reduction." If the first attempt fails try it again; if it fails a second time, try a third. If that does not succeed, open the joint and reduce according to Hoffa's bloody method; and finally, if this fails, excise the joint and get a bony ankylosis.

CONGENITAL DISLOCATION OF THE SHOULDER.

MARSTON (*New York Medical Journal,* March 30, 1901) observes that it is of the utmost importance to distinguish between cases of dislocation and true obstetrical paralysis. The treatment of the former condition is immediate reduction—by manipulation if possible, otherwise by operation. Every infant, too, should be examined at birth, for it is at this time that reduction is easiest performed.

From the facts that a fracture of the glenoid cavity was found in three cases reported by Phelps, and that the history of nearly all cases shows difficult labor, Marston has been led to believe that these cases are not of paralytic origin, or due to non-development, as affirmed by Scudder, but that they are due to traction made in the axilla by the finger or vectis, or to the arm being caught in some unusual position and dislocated by the contraction of the uterus. Paralysis may be coincident, but it cannot be a primary factor in causing dislocation posteriorly.

The prognosis of the operative treatment is excellent. The earlier the operation the more hopeful is the outlook.

As is the case with congenital dislocation of the hip, these cases of the shoulder are but little benefited by mechanical treatment.

NEW REMEDY FOR HEMORRHOIDS.

HALL (*Cincinnati Lancet-Clinic,* March 23, 1901), led thereto by the effect of echinacea angustifolia on a suppurating wound of his finger, which had been bitten by his horse, prescribed a mixture containing equal parts of the fluid extracts of hamamelis virginiana and echinacea angustifolia (Parke, Davis & Co.), for a woman schoolteacher for whom a surgeon had recommended an operation as the only means of effecting a cure. Two fluidrachms was directed to be injected into the rectum after each operation of the bowels. This treatment was continued until six fluidrachms of the mixture had been used. The patient had prompt relief from pain, the hemor-

rhoids ceased to trouble her, and now she says that she is entirely well.

Some patients treated later complained that the medicine was too strong, and the formula was modified to read:

℞ Ext. echinaceæ angust. fl., ℥j;
Ext. hamamelidis virg. fl., ℥ij;
Aquæ destillatæ, ℥j.

M. Sig.: Inject two fluidrachms after each stool.

The slight burning sensation experienced after the use of the mixture soon passes away, and the peculiar cooling effect of the echinacea is felt by the patient.

RESECTION OF FOUR FEET OF SMALL INTESTINES.

To show the endurance and ability of the human system to withstand shock and to sustain life when a large portion of the small intestines is removed, NUTT reports a case in the *Pennsylvania Medical Journal* for April, 1901:

A farmer's wife, aged sixty-two, was taken with abdominal pain, vomiting, and symptoms of intestinal obstruction. A small right femoral hernia was discovered, and every effort at reduction failed.

Attendant circumstances indicated an immediate operation, which was hastily made. A small knuckle of bowel was found completely strangulated, and in a necrotic condition. The gut was drawn out and about four inches removed. The ends were then united with a Murphy button. As the ring would not allow of the replacement of the united ends, Poupart's ligament had to be severed. The parts were carefully brought together by buried and interrupted sutures and the lower end of the cut was drained. Except suppuration in the line of incision, a good recovery was made; the button was passed on the seventh day.

Three years afterward she again suffered from violent abdominal pains. The abdominal cavity was opened, and a large quantity of bloody serum was allowed to escape. The abdomen seemed filled with a mass of necrotic bowel quite black and distended with bloody fluid. These intestines were strangulated by being forced through a hole in the omentum, or a band adherent to the old scar.

The whole mass was in such a gangrenous condition that it was thought useless to proceed any further, but the pulse being found good, as was also her general condition, the strangulated part was removed. An end-to-end anastomosis with a Murphy button was made. The parts that were united three years previous were also removed.

An abscess formed in the line of incision or in the abdominal wall, but otherwise there was good recovery. The button was passed on the tenth day. The patient is now in good health.

The mass of intestines removed measured forty-eight inches in length, which with the four inches removed at the first operation made fifty-two inches. The union of the two ends of the first operation was almost perfect.

THE EASIEST, QUICKEST, SAFEST, AND MOST THOROUGH METHOD OF REMOVING THE THIRD TONSIL.

The presence or absence of enlarged adenoids can usually be determined, according to LAUTENBACH (*Pennsylvania Medical Journal*, April, 1901), without a pharyngeal examination. There is general poor health of the children, in whom the growths seem to be especially found, accompanied by poor peripheral circulation, occlusion of the nostrils, with mouth-breathing and peculiar flattening of the nose, want of proper chest development, and a characteristic voice. The addition of other symptoms, such as ears subject to acute colds, the tendency to enlarged tonsils or to bronchitic attacks, the presence of conjunctivitis, ulcer of cornea or phlyctenular conjunctivitis, serve to confirm the diagnosis. The best evidence, of course, is to see and feel the growth. Of the methods of examination, digital examination through the mouth is usually much more easily accomplished, and on the whole gives a more accurate idea of the growth.

To make this examination, Lautenbach uses the index-finger of the right hand. The child is seated on a revolving chair with a swinging spittoon handy, his head is encircled by the left arm, the head is held gently but firmly to the operator's left chest, the left finger over the patient's forehead. The operator inserts the right index-finger on the right side of the mouth back to the soft palate, and then proceeds back of this up to the vault, which is quickly and thoroughly explored. A gag is not used in the child's mouth, but the first phalanx of the index-finger is protected by wrapping two

or three layers of one-inch adhesive plaster about it, and then putting over this two or three turns of a doubled two-inch flannel roller bandage, the end of which is made secure by making one turn about the wrist. As the second turn is about to be made, the free end should be passed under the band already in position.

Any growth is removed by gouging it out with the nail of the index-finger, and if there are some parts of the growth so firmly attached that the finger-nail alone will not remove them, Lautenbach employs an artificial finger-nail, and does not stop until every vestige of the growth is removed. The mass scraped off is allowed to run through the nose and mouth into the spittoon.

The examination and operation is preceded by a thorough alkaline and antiseptic cleansing of both throat and nose. Cocaine solution is then applied through the nose to somewhat dull the sensibility. After the operation the throat and nose are again thoroughly cleansed and antisepticized, and usually warm oleaginous sprays are ordered.

The operation is done by Lautenbach in from ten to twenty-five seconds.

The operation is safe, the child is entirely under control, the work is almost instantaneous, there is very little or no pain, and there is no shock following the operation.

Recurrence by this method is very rare, a result not attained when the cautery, curettes, and forceps are used.

SOME PRACTICAL POINTS IN THE DIAGNOSIS AND OPERATIVE TREATMENT OF PERFORATED GASTRIC ULCER.

Up to 1893, according to MAUNSELL, who has written for the *British Medical Journal* of March 23, 1901, an article on some practical points in the diagnosis and operative treatment of perforated gastric ulcer, Mikulicz collected 35 cases, of which only one recovered, but within the next three years he was able to collect 68 cases more, with 47 per cent of recoveries. A. E. Barker collected from 1895 to 1897 (3 years) 107 cases from English sources with 49 per cent of recoveries, and last year Mayo Robson gave a list from all sources of 429 cases, with 45 per cent of recoveries. After considering some small lists in addition to the above, Maunsell believes that at the close of the century there were between 45 and 50 per cent of recoveries from an accident which but seven years ago was practically a death warrant.

As showing the advantage of early operation, Barker's English list shows 76 per cent of recoveries in 42 cases operated upon within twelve hours. After twelve hours the recoveries were only 25 per cent. Other cases show a somewhat similar result in favor of early operation.

In diagnosis, the points to which attention is especially invited are that the pain, which begins in the epigastrium, spreads, but does not shift its position; that there is no pain on micturition, which is a frequent sign in peritonitis of the lower abdomen; that thirst is not intense, and there is no flinging about, as in hemorrhage; that there may be no distention in muscular subjects, the tympanites and free gas being only shown by the encroachment on the thoracic area; that the pulse cannot be relied upon in forming an early diagnosis; that the statement sometimes made that "a stomach note" excludes perforation is unwarrantable, as a perforated and a collapsed stomach are by no means synonymous terms; and that liver dulness is diminished or absent in almost every case.

Every case in which diagnosis has been made in time should be operated upon, and it is never too late to perform the operation unless the patient is evidently moribund.

With regard to the operation, the primary incision is best made in the ordinary way, midway between the umbilicus and ensiform cartilage, and this should be enlarged in any direction in which more room is required, either longitudinally or transversely, by cutting with strong scissors. The perforation in over eighty per cent of the cases will communicate with the greater sac of the peritoneum, and can be readily found. If the anterior surface shows no perforation, then the posterior surface can be exposed by tearing through the gastrocolic omentum, thus opening the lesser sac.

The next thing is to empty the stomach through the perforation by means of a catheter, and then to sew up the opening. Some advise excision of the ulcer, but most operators prefer simple suture. The form of suture used by Maunsell was a through-and-through, interrupted silk stitch, usually called Dupuytren's, and over all an omental graft, which adds very little to the time of operation.

The most important part of the operation

is the cleansing of the peritoneal cavity. Some recommend douching, and some recommend sponging. Maunsell thinks the right course is to douche, then to carefully wipe out the pelvis, superior surface of the liver, and inferior surface of the diaphragm with large gauze pads held in the hand, not in forceps, and then again a final douching. The best way to do the first douching is to hold up the edges of the wound and pour in saline solution from a jug, gently manipulating the intestines, etc., until all gross matter ceases to come away.

For the final and more methodical douching the best plan is to take the end of a wide rubber douche tube in the hand, without any nozzle, and passing the hand and forearm through the wound carry it into the pelvis and douche upward, and then carry it up above the liver on both sides, finally removing as much as possible of the fluid.

In none of his cases did Maunsell open the lesser sac, and in none of the cases did subsequent events prove that this was wrong. It seems to be of great importance in every case, no matter how localized it appears, to carefully pass the hand down into the pelvis and up over the liver, to make certain that these treacherous regions are clean.

Drainage, according to Maunsell, is futile except in cases in which there is distinct abscess cavity walled off by adhesions.

Through-and-through fishing-gut sutures are to be preferred to permanent silk sutures.

AUTOREDUCTION OF HERNIA EN MASSE AS A CAUSE OF ABDOMINAL OBSTRUCTION.

Attention is directed by WALSHAM (*British Medical Journal,* March 23, 1901) to abdominal obstruction due to the patient having himself reduced a hernia *en masse.* Six or seven cases have come under Walsham's observation. In one there was a well marked fulness in the inguinal canal rendering the nature of the condition perfectly obvious. On getting the patient to stand up and cough and strain, the sac with its contents readily came down. The intestine was then easily reduced without any further trouble. In another case Walsham made an examination with reference to the question of abdominal section. The rings were free, but there was suspected a distinct fulness in the right inguinal canal, over which there was also a greater sense of resistance than over the left, besides some deficiency of resonance. Exploration was made in that region before the abdomen was opened in the middle line. The hernia was discovered, the sac drawn down, and the intestine returned.

A mere examination of the abdominal rings and inguinal canal may lead the observer into error, for although the rings may be found perfectly free, a reduction *en masse* may nevertheless have occurred, and sometimes even at a considerable period of time before the patient is seen. It is important therefore to inquire if a rupture has recently been down, and if there was any particular trouble in replacing it.

The diagnosis may be attended with considerable difficulty. As in other abdominal cases the patient's mental faculties are often dulled through the intensity of the pain and through his anxiety over the gravity of his condition, and, also, he is frequently partly stupefied by the injudicious administration of morphine or other narcotic. Moreover, he may have effected the reduction *en masse* with very little pain, or, indeed, with very little more trouble than he usually experienced in putting back his rupture, and sometimes at a considerable period from the onset of the symptoms. So little impression, therefore, may have been made on his mind that he may altogether have forgotten the incident or may consider it of no great importance, and fail to mention it unless specifically questioned on the point, and sometimes not even then.

The importance of an early diagnosis cannot be overestimated. Given an accurate diagnosis and early surgical interference before the integrity of the intestinal wall has been seriously affected, the strangulated gut can be at once cut down upon, the operation can be quickly completed with very little disturbance of the abdominal contents, and with almost a certainty of success, whereas the reverse would probably be the case if the diagnosis is only made during a prolonged exploration attended by free manipulation of the intestines and consequent general implication of the peritoneal cavity.

TREATMENT OF INTUSSUSCEPTION.

Since the beginning of 1901, CLUBBE (*British Medical Journal,* March 23, 1901), according to a clinical lecture which he de-

livered at the Prince Alfred Hospital, Sydney, N. S. W., operated on thirteen children for intussusception, and altogether during the past seven years he had to deal with forty-nine such cases. In four of the cases the intussusception was reduced by injections alone; the remaining forty-five were operated upon. Of these forty-five laparotomies, twenty-four recovered and twenty-one died. He found that in the successful cases the time which elapsed from the onset of the symptoms till the operation averaged twenty-four hours, whereas in the fatal cases the average time was fifty-six hours. These figures alone show the importance of early diagnosis.

Clubbe finds injections both useful and safe, and he nearly always uses them at whatever stage he sees a case.

The injection properly given always reduces the intussusception to a certain extent, and in a very gentle, harmless manner.

The injection may be given by means of an ordinary enema syringe or an irrigator, and may consist of warm oil or water. The child should be prepared for the operation, an anesthetic given, the buttocks raised, and from ten ounces to one pint of the fluid injected. Then the fluid should be allowed to escape, and the abdomen again examined. If the tumor is still to be felt, the operation should be proceeded with; if it has entirely disappeared and cannot be felt at all, the child may be given a minute dose of morphine and put to bed. It must be examined again in six hours, certainly not later than twelve hours, and if there is any return of the tumor the operation should be begun at once. The case should be carefully watched, and if there is no return of symptoms in forty-eight hours the case may be considered at an end.

Before the operation for reduction it is well to give some strychnine and morphine hypodermically. A large hot-water bag may be placed on the table under the child. When the mass is small and confined to the ascending colon the incision may be made to the right of the rectus muscle; in other cases it must be made in the middle line. In small babies it must begin well above and extend well below the umbilicus. The umbilicus itself is avoided. All vessels should be tied before opening the peritoneum. The peritoneum in babies is very fine, and there is sometimes a little difficulty in opening it on account of the light feathery omentum which will come through the tiniest opening in it, and thus presents an obstacle to its being made larger. One way out of this difficulty is to put a small hook, such as an aneurism needle, into this little opening and pull the peritoneum forward. When once the peritoneum is well opened the fingers should be put into the abdominal cavity to try to deliver the tumor. If the intestines are much distended and the coils of the intestines tend to come out and so interfere with the manipulations, it is better to let them come out rather than to waste time and damage the coils by fruitless efforts to retain them. When the lower part of the mass is found gently squeeze the intussuscipiens. Do not attempt to pull out the entering bowel. At the last, before the cæcum unfolds itself, if you have put as much pressure as you dare on the sheath, an assistant may apply very gentle traction on the bowel just above where it enters. The squeezing is continued with very gentle traction, and often it will be found that the intussusception will gradually unfold itself. The intussusception in some cases may be reduced partly while it is in the abdomen, but at the end the last part of the bowel which has to be uncoiled must be delivered or brought into view.

In many cases it will be found that it is not at all easy to reduce the invagination, and that in some cases it will be impossible to make the reduction. The apex will swell and will not readily go back through the neck. While the squeezing is going on it may be found that the peritoneal coating of the intussuscipiens is cracking and tearing.

It is difficult to decide in any one case when to leave off the squeezing process and proceed to resection. When it is seen that there will be much tearing of the outer sheath by any further attempts in the manner described, it is better to give it up and resect at once.

A few slight peritoneal tears are not necessarily a bar to recovery, but if there has been much tearing, or if the condition of the intussusceptum, when reduced, looks very doubtful, it is better to remove the damaged portion of the bowel. In the ileocæcal variety when the appendix has been very much nipped, it is better to remove it if there is any doubt as to its vitality.

The intussusception in the very tight cases is always very much discolored, and sometimes feels so hard that you might fancy it contained some foreign substance, but if the peritoneal coat has not lost its polish it may

be safely left alone. In resecting Clubbe employs usually the ordinary end-to-end anastomosis, and does not use bobbins or buttons. He also uses a continuous suture of fine catgut, putting in a double row.

In many cases, and especially in those that have been reduced easily, it may be found that at the part of the intestine which was the apex of the intussusceptum there will be some thickening and a small cup-shaped depression. This concavity must be carefully pressed out and made convex, or the intussusception may recur. Sometimes it is necessary to keep a little pressure with the fingers on this part of the bowel for a minute or so to prevent its becoming concave again.

The exposed intestines are washed with warm normal solution, and after the reduction has been completed they are replaced in the abdominal cavity. No matter how difficult it may be to replace them, the bowels should not be punctured.

The intestines returned, the abdomen is closed with through-and-through silkworm-gut sutures. It is better to leave no drain. Suturing the abdomen in layers is not to be recommended in these cases.

In the after-treatment, which is important, the babies must be fed after the first few hours. Mellin's food, or whey and water (one drachm to two ounces), or the white of an egg in four ounces of cold boiled water (to which one drachm of somatose may be added), may be given to them in small quantities, and often.

After forty-eight hours, if all be well, babies that have not been weaned may be given the breast again. If this is not possible they may be carefully fed on one of the numerous prepared foods.

The children may be turned first on one side and then on the other if necessary, and also occasionally taken up and carefully carried about for a short time.

As to drugs, these children will nearly all require morphine in very minute doses, at varying intervals during the first twenty-four hours. Strychnine and digitaline are also often indicated, and may be given hypodermically. If the child's bowels are not open after the first twenty-four hours, a small dose of calomel may be given. In most cases the bowels are open in the first twelve hours, and the motion generally contains blood and mucus.

The silkworm-gut sutures must never be removed before the tenth day, and Clubbe frequently leaves them in even longer if they are doing no harm. He has narrowly escaped some catastrophes from the too early removal of the stitches.

If one or more of the sutures give trouble they should be removed, but all of them should not be taken out until it is certain that firm union has taken place.

TREATMENT OF MALIGNANT GROWTHS BY COLEY'S FLUID.

Coley's fluid has been used by WILD (*Medical Chronicle,* March, 1901) during the past four years in eight cases of inoperable cancer. All the patients were kept under observation until death, and in six cases the diagnosis was verified by post-mortem examination.

As to the effects of the treatment, pain was severe in two cases only. Local reaction, in the form of redness and swelling, occurred in three cases. General reaction, in the form of a rise of temperature with or without rigors, was absent in two cases, and marked in three cases. The dose required to produce a general reaction varied widely with different patients: in one case one minim was followed by a temperature of 103° F., while in another case sixteen minims failed to cause any marked rise. In several cases the effects appeared to be cumulative, as in a particular case where little effect was produced by a dose of five minims, until fourteen injections had been given, when a rigor and rise of temperature suddenly occurred.

The appetite and nutrition of the patients were not impaired; they did not lose weight more rapidly than usual in similar cases. One case gained weight.

In one case there was no effect upon the disease, which steadily progressed, and ended fatally in about the usual time for similar cases in the hospital. In two the effects of the injections appeared to be unfavorable. Wild thinks it is not advisable to employ this method of treatment in feeble patients.

Two patients considered themselves benefited, and certainly lived longer than expected.

From a study of the published cases and from his own experience, Wild does not believe that the results obtained so far justify the trial of Coley's method in any operable cases of malignant disease, whether carcinomatous or sarcomatous. A recourse to it

seems to waste time, and probably renders subsequent operation fruitless.

In cases of inoperable carcinoma and epithelioma there is no evidence of any permanent benefit, and the treatment is by no means free from danger. In the absence of any other means of effective treatment a careful trial of Coley's fluid is justifiable in cases of inoperable sarcoma, especially the more rapid growing forms. A limited number of successful cases have been reported in which the disease was of this type, and others in which there was temporary improvement.

Further researches upon the after-effects produced by erysipelas are desirable, as it appears by no means certain that the effects produced by the toxins are identical with those which result from an attack of genuine erysipelas.

CONTRACTURE OF THE NECK OF THE BLADDER.

CHETWOOD, in the *Medical Record* of May 18, 1901, defines contracture of the neck of the bladder as a fibroid stenosis of the vesical sphincter or fibrous infiltration of the glandular and muscular tissues encircling the bladder neck, simulating symptomatically stone in the bladder, and resembling senile prostatic hypertrophy by the mechanical hindrance it produces to the urinary outlet.

The cause of this condition is found in long-standing chronic inflammation centered in the region of the trigone (behind) or in the prostatic sinus (in front). It is commonly but not necessarily of gonorrheal origin. Prostatic abscess, stone in the bladder, traumatism, or any of the conditions involving prolonged suppuration in the neck of the bladder or prostatic urethra, may leave behind them this condition; and it may also coexist with prostatic hypertrophy, when it becomes one of the elements of the obstruction formed by this morbid growth.

The most predominant symptoms are urgency and frequency of urination. The desire is generally precipitant, and if not responded to promptly is productive of marked pain in the bladder region or involuntary urination. Difficulty in starting the flow is noted in some cases, and attacks of complete retention supervene in many instances. In long-standing cases the force of the stream is distinctly less than normal, and residual urine exists in varying quantity in most if not in all of the cases. The urine generally contains the elements of catarrhal inflammation, while at times it is devoid of these qualities and is perfectly clear. Examination per rectum discovers nothing characteristic of this condition, although prostatic hypertrophy may exist also. Examination by way of uretha with a short-beaked sound meets an obstruction beyond the prostatic sinus, and after entering the bladder the same obstruction will be recognized by turning the beak toward the bas-fond. The urethral distance is not elongated unless there be a coexistent median or lateral prostatic enlargement.

The only satisfactory surgical means of treating it is free incision of the obstructing area through a perineal wound. The dangers of other methods are much lessened if not removed, when a perineal opening is made and drainage instituted.

One of the greatest objections to an intravesical operation done by way of the urethra is the lack of precision allowed in its performance; but there has been introduced of late an instrument permitting the Bottini operation to be performed under ocular inspection by the combination of a cystoscopic attachment to the incisor. Chetwood thinks that the advantages of the Bottini operation can be incorporated in a procedure surgically precise, less dangerous, and more effectual. This consists in adopting the perineal route as a means of approach to the neck of the bladder, and the galvanocautery knife as a means of removing the obstruction or the obtruding inflammatory or hypertrophied growth.

The instrument used by Chetwood, like the Bottini and Freudenberg instruments, has an outer shaft in which slide the wires and cautery knife. The beak is turned to a right angle. The blade is about one centimeter in length. The handle of the instrument is graduated so that the length of the cut is accurately determined. The sliding of the knife is controlled by the fingers instead of the rotation of a wheel. A movable stop upon the handle makes it impossible to cut beyond the distance determined upon before the current is turned on. One hand only is required to operate the instrument, so that the index-finger of the other is free to be introduced into the rectum. No cumbersome cooling attachment is required. The circulation of a cold, sterilized solution through the urethra and out through the perineal wound accomplishes the purpose of

keeping the instrument sufficiently cool without affecting the blade. When a storage battery is used an amperemeter is attached, and the same amount of current is required as with the Bottini instrument—about 50 amperes. When the street current is used, which is much more satisfactory, a motor transformer and rheostat are needed.

For the operation the patient is placed in the lithotomy position, the bladder having been previously washed with boric or borosalicylic solution, a small portion of which is left in the bladder. The urethral distance and amount of residual urine should be noted. A small-sized grooved staff is introduced and a median perineal incision made upon this, opening the membranous urethra. The bladder having been reached, the staff is withdrawn and the finger introduced into the perineal opening. In cases of marked contracture of the neck of the bladder, whether accompanied by prostatic hypertrophy or not, when the vesical orifice is too small to admit the examining finger, this opening is not forced and torn by the finger of the operator, but the cautery knife is at once introduced for the first incision. In making this cut it is not necessary to be particular that the bladder contains fluid. The instrument is first tested and then introduced into the bladder through the perineal opening. The index-finger of the left hand feels for the beak through the perineum. An assistant couples with the meatus a blunt glass nozzle attached to an irrigator containing cold saline or boric solution. The operator, who holds the handle of the incisor in one hand and recognizes its actual situation with the finger of the other in the rectum, turns on the current by means of the interrupter, and the assistant allows the cooling solution to flow. Ten seconds are allowed to elapse before the knife is unsheathed. The operator then slowly withdraws the knife with the fingers of the right hand, readily appreciating that it is doing its work. This maneuver is conducted very slowly. From one-half to three-quarters of a minute is generally taken to complete an incision of minor length and return the knife to the sheath, when the current is discontinued. The cooling irrigation is allowed to flow for a short time, and the instrument is then withdrawn. The finger of the operator can now readily enter the bladder and a careful and exact examination be made. In cases of simple contracture the work has been completed, as is often also the fact when there is a prostatic bar. When the finger distinguishes a marked unilateral or bilateral prostatic growth, these are either carefully burned through with the galvanocautery knife, or in the case of a pedunculated lobe its removal is effected by means of an incision on either side. The bladder is now washed and a small perineal tube tied in place. The patient is returned to bed. The whole operation takes but a few minutes after the patient is under the influence of the anesthetic.

General anesthesia is always employed, beginning with nitrous oxide and ending with ether. If the patient's kidneys are diseased, or if for any other reason chloroform is preferred, after the ether anesthesia has been thoroughly established chloroform is substituted, and thus a minimum amount of the former anesthetic is employed. The advantages of general anesthesia need no comment. The after-treatment of the patient is important, and is practically the same as in perineal section. Urotropin or cystogen is given in doses of 40 to 50 grains in twenty-four hours, and an anodyne may be administered, but is seldom required. The bladder is washed daily with borosalicylic or nitrate of silver solution through the perineal tube. The bleeding is always slight. In none of the cases operated upon has it been persistent or annoying. The perineal tube is removed from the third to the sixth day, after which the reestablishment of the natural channel takes place, as after a perineal section, at the expiration of a variable period.

Chetwood has operated on sixteen cases. The age varied from thirty to seventy-three years. Six cases were simple contracture of the neck. Three patients had reached the age when prostatic hypertrophy supervenes, and might aptly be called cases of the contracture type of hypertrophied prostate without marked lateral enlargement; and, besides these, five patients had more or less unilateral or bilateral prostatic outgrowth. One case was complicated with calculi. Two cases were tuberculous. Two patients had previously had epicystotomy performed, in one of which a suprapubic fistula remained. Two patients were diabetic. One of the patients died five weeks after the operation from pyelonephritis, having secreted prior to the operation only 10 to 13 grammes of urea in twenty-four hours. Seven patients are considered entirely cured

three materially improved, and five partly improved.

Two of the cases not wholly improved are tuberculous. The remainder of the improved cases are still under observation, and show signs of progressive betterment.

No evidence exists of permanent perineal fistula in any of the cases. In one only was there much tardiness in the closure of the wound. The cases complicated with suprapubic fistula resulted in complete closure.

Residual urine was present in all the cases, and in several there was overflow.

The symptoms of urgency and frequency of urination, diurnal and nocturnal, were present to a greater or less degree in every instance, and as a result of the operation have disappeared or moderated in most of the cases.

The residual urine has entirely or practically disappeared as a result of the operation in all cases with the exception of one in which there still remains four ounces, there having been at the time of operation thirty ounces of retained urine, and the residuum has shown evidence of progressive diminution at each examination subsequent to the operation.

Two of the patients still under observation have more or less incontinence of urine, but there are hopes that it will disappear.

Two patients developed swollen testicle after the operation, both of whom had previously had similar attacks of the same trouble. There was no suppuration either in the testicle or the ducts, the inflammation promptly subsiding under appropriate treatment.

In reviewing the histories of the cases a noteworthy fact is the absence of complications which have been a feature in many of the operations according to the Bottini technique, as admitted by the various writers who have reported them.

WOUND DISINFECTION WITH PURE CARBOLIC ACID.

In an article translated for the *Philadelphia Medical Journal* of May 18, 1901, Professor VON BRUNS does not hesitate to recommend the application of pure carbolic acid in small quantities and for one minute, followed by immediate irrigation with absolute alcohol, as a remedy that forms a valuable adjunct to mechanical procedures in infected wounds. He says that carbolic acid in concentrated solution is relatively less toxic than when diluted, that its penetrability during its brief influence is but slight, and that the bactericidal action of pure carbolic acid surpasses that of sublimate in albuminous compounds.

After incision, and subsequent curetting or excision of the wound, the surrounding skin is protected against the excess of carbolic acid by wetting it with absolute alcohol; the wound is then thoroughly swabbed with a gauze sponge previously immersed in pure carbolic acid. The amount of acid employed depends upon the size of the wound, but more than two to six grains was not used in the largest wound; therefore, not more than is injected in a hydrocele sac and left there with impunity.

The cauterization is not particularly painful, and it may be performed without anesthesia. The subsequent pain after fresh incisions is also remarkably slight. Particularly remarkable is the small amount of secretion after the first dressing, so that the latter may remain from two to four days in cases where otherwise the dressings would have had to be regularly changed after twelve to twenty-four hours. For example, in a case of resection of the hip-joint, performed on account of grave, acute puerperal suppuration, the first dressing was allowed to remain four days, during which the temperature was nearly normal.

CHLORETONE AND MERCUROL.

DARCHE, in the *Canadian Practitioner and Review* for April, 1901, says that he has found the combination of mercurol with chloretone and boracic acid a very happy one, particularly in the treatment of various acute and chronic affections of the skin and mucous membranes.

The chief use he has made of chloretone is as an ointment, sometimes associated with mercurol, and often with boric acid. In a case of extensive ulcers of the legs of a somewhat rachitic child two years old, with ulcers over the back, treated in many ways unsuccessfully, he prescribed:

℞ Pulv. amyli,
Zinci oxidi, āā ℥ij;
Mercurolis, gr. xv;
Chloretoni, ℥ss;
Petrolati, ℥j.

M. et ft. ung. Sig.: To be applied on pieces of lint, constantly recovering the affected areas.

The relief was almost instantaneous; the child began to sleep better, he ceased to scratch his sores, and he became less irritable. Of course, the underlying condition was treated as well. The ulcers healed in a surprisingly short time.

The following was prescribed for a man suffering with ulcerated hemorrhoids, and who wanted only palliative treatment:

℞ Mercurolis, gr. v;
Chloretoni, gr. xv;
Acidi boracici, ℥ss;
Petrolati, ℥j.

M. et ft. ung. Sig.: To be applied three times daily.

There was almost immediate relief.

For a young girl suffering from an ulcerated rectum, there was prescribed Parke, Davis & Co.'s elixir cascara sagrada, one fluidrachm to be taken each morning and evening according to circumstances; and also the following:

℞ Mercurolis, gr. j;
Chloretoni, gr. ij;
Acidi boracici, gr. viij;
Olei theobromæ, gr. xxx.

M. et suppos. no. i ft. Sig.: To be inserted at bedtime.

The cure was rapid and the pain disappeared almost immediately.

The very best results were obtained from the use of an ointment of chloretone with boracic acid in two cases of pruritus vulvæ. Bougies of the following composition were used with perfect satisfaction in several cases of chronic gonorrhea:

Mercurol, 1 per cent;
Chloretone, 2 per cent;
Boracic acid, 8 per cent.

For over six months Darche has treated in this manner all cases of acute gonorrhea; a one-per-cent solution of mercurol is used as an injection, and calcium sulphide is given internally, *ad saturandum*, and nothing else is done. Whether his cases were of a mild form or not, they nevertheless ran a mild course, lasting not more than three weeks, and in some instances as short as two weeks. One of the patients, whom Darche saw on the third day, and who had in addition to a profuse purulent discharge a temperature of 101° with chills the succeeding night, told him that he was cured before his bottle of medicine was empty.

A COMPARISON OF ANTISEPTICS.

The following excerpts are taken from an excellent short article by HOOPER, on a comparison of antiseptics, in the *Canadian Practitioner and Review* for April, 1901, and are based on a report on the literature on the subject by the State Board of Health of Maine:

Reinicke, Ahlfeld, and Epstein, in an extended series of investigations, agree that the most important condition favoring the action of alcohol is the presence of moisture. It is, moreover, a valuable auxiliary, as Epstein's conclusions clearly show: "That absolute alcohol has no disinfecting power; that 50 per cent disinfects better than higher or lower concentrations; that antiseptics which have more or less efficiency as aqueous solutions lose their disinfecting properties when dissolved in high grade alcohol, but that, on the other hand, solutions of sublimate, carbolic acid, lysol, and thymol have a higher power of disinfection in 50-per-cent alcohol than solutions of the same concentrations in water have." In itself alcohol has not valuable antiseptic qualities, but is useful in that it enhances the antiseptic properties of other agents.

The convenient method of boiling is found to destroy in a few minutes most disease germs at a point considerably below boiling. Cholera spirillum was killed at a temperature of 125° F. in four minutes; typhoid bacillus at 139° in ten minutes; staphylococcus pyogenes aureus at 136.4° in ten minutes.

In a comparison of boiling water and steam the former has a distinct advantage in that it more readily absorbs moisture and thus destroys the vitality of the bacteria. The same volume of steam contains 1700 times fewer molecules of water. Another obstacle which steam encounters in penetrating bacteria is undoubtedly a coating of minute air bubbles adherent to the germs.

Plunged into water, air has a tendency to rise to the surface. This is due to the great difference in the specific gravity of air and water. The difference at 100° C. is about 1:1000; with steam it is only 3:5. The steam is deprived therefore of this valuable aid in freeing the bacteria from air bubbles.

Carbolic acid is so universally relied on and adhered to by the medical profession that it is well to be aware of its limitations.

Koch says that for the destruction of

anthrax spores a three-per-cent solution must act seven days.

The especial advantage possessed by carbolic acid is due to the fact that its action is not materially influenced by the presence of acids, alkalies, salts, or albumen. In solutions free from the foregoing substances, carbolic acid is much weaker than corrosive sublimate. Uffelman's experiments proving that a five-per-cent solution of carbolic acid failed to destroy typhoid bacilli in one hour do not tend to increase confidence in carbolic acid. The most interesting and useful fact about carbolic acid is that certain auxiliaries greatly increase its potency.

A two per cent of crude carbolic acid with one per cent of pure hydrochloric acid destroyed anthrax spores in seven days; the same percentage of these solutions separately did not destroy these spores in thirty days. Dr. Scheurlen, in a paper on the molecular conditions of aqueous solutions of disinfectants, as regards their efficiency, states that a one-per-cent solution of carbolic acid in water failed to destroy staphylococcus pyogenes aureus in five minutes, but a one-per-cent solution of carbolic acid with twenty per cent of common salt destroyed the same organisms in one minute.

Upon Scheurlen's recommendation certain surgeons have used the one-half-per-cent solution of ortho-cresol with twelve per cent of common salt as a very satisfactory antiseptic. The rusting of instruments in it can be prevented by the addition of 1:1000 of hyposulphite of soda.

It is well to emphasize Koch's statement and Lenti's confirmation that carbolic acid in olive oil or absolute alcohol has no effect whatever.

Lysol consists of neutral soap, water, and cresol. It is undoubtedly a better disinfectant than carbolic acid and is also cheaper. Gruber found that a two-per-cent solution of lysol destroyed the staphylococcus of suppuration as readily as a three-per-cent solution of carbolic acid. In Martin's clinic in Berlin the statistical showing was more favorable after the use of lysol than after that of carbolic acid.

Gerlack, in speaking of its advantages in surgical practice, says that lysol is more efficient than carbolic acid; that the disinfection of the hands is assured by using a one-per-cent solution without the previous use of soap; that a one-fourth per cent renders instruments sterile and does not attack the instruments; and that it is eight times less poisonous than carbolic acid, and much less so than corrosive sublimate. The one disadvantage of lysol, namely, rendering the hands and instruments slippery, can be overcome by subsequent washing in sterilized water.

Solveol is a preparation of cresol held in aqueous solution by means of cresotinate of soda. It contains twenty-seven per cent of cresol and is used principally as a surgical antiseptic. It forms clear and perfectly neutral solutions in water; solutions of the same strength are twenty times less poisonous and much less caustic than those of carbolic acid; its solutions do not roughen the hands as corrosive sublimate does, nor benumb them as carbolic acid does, nor render them slippery as lysol does, nor obscure the field of operation as the precipitate of creolin does; its odor is less persistent than that of carbolic acid; diluted with calcareous waters, precipitates are not formed as with corrosive sublimate and lysol.

It speaks most favorably for solveol that Hammer found five per cent of solveol to act more energetically than a 2.5-per-cent solution of creolin, lysol, and carbolic acid.

The suitability or unsuitability of corrosive sublimate for certain disinfecting purposes is a question which has been widely discussed.

The inability of 1:1000 solution to destroy staphylococcus aureus in less than twenty-three hours is very unfavorable evidence against the sublimate.

McClintock, after a series of experiments, is forced to the conclusion that the germicidal power of solutions of sublimate has been enormously overestimated. He closes with the following summary:

1. The high rank heretofore given corrosive sublimate as a germicide is without warrant and was based upon faulty experiments.

2. Sublimate forms with cellulose, milk, albuminous bodies, with some parts of bacteria, probably the envelope, a chemical compound that cannot be removed by any amount of washing with water. This sublimate when acting on a germ forms a capsule around it, which for a time protects the germ from the further action of the sublimate.

Three objections exist to mercuric chloride being considered an ideal antiseptic in

surgical work: Its great toxicity, which requires the greatest care in its use; its precipitation of albuminous material; and the tarnishing of instruments. A fourth may be added, that of roughening the hands.

To Dr. Charles McClintock we are indebted for the results of thousands of experiments performed, to make antiseptic soap in which mercurial salts remain in an active form and undecomposed.

A solution of the double salt of mercury and potassium iodide was found to permit the presence of a weak alkali without the precipitation of albumen. If too little alkali is used the metals are attacked; if too much, the mercury is precipitated.

The following conclusions express well the merits of antiseptic soap:

1. In proportion to the amount of antiseptics contained, this soap is at least four times stronger than any known germicide. A one-per-cent solution of the soap, 1:5000 of mercuric iodide, is at least equal to 1:1000 of mercuric chloride.

2. It does not coagulate albumens or attack nickeled or steel instruments.

3. It does not attack lead pipes nor silver and aluminum instruments.

A solution containing one-fourth per cent of soap or 1:2000 of mercuric iodide has to its credit the destruction of staphylococcus in one minute.

ANEURISM OF THE ASCENDING BRANCH OF THE AORTA.

BARTH notes in the *Münchener Medicinische Wochenschrift*, No. 14, 1901, that interest has been reawakened lately in aneurisms by the possibility of demonstrating their presence by means of the *x*-rays, and by the possibility of curing them by gelatin injections. He gives in detail a history of a case in which the symptoms were apparently those of an aneurism of the ascending portion of the aorta. The patient complained of shortness of breath and pain, and was slightly cyanotic. Pulsation was felt in the right infraclavicular region. Bruit and all concomitant symptoms were present. In addition to the large aneurism the patient was suffering from mitral insufficiency, emphysema, tracheitis, and bronchitis. Since Lancereaux asserts that the sacculated aneurisms are more amenable to gelatin treatment than those of the spindle form, Barth, finding that ten ergotine injections made in the region of the aneurism were fruitless, made twelve injections of a one-per-cent solution of gelatin which had been sterilized by heat. The injections were made in the cellular tissue of the lumbar region and caused very little suffering. As a result of these injections there was an apparent improvement. Three months later a second course was ordered, beginning with a two-per-cent gelatin solution, which was increased until a five-per-cent solution was employed. The injections were repeated every second day. As a result of these injections it is to be noted that dyspnea was less marked, that the pain in the back and arms was the same, that the swelling was markedly diminished and firmer, and that the pulsation was less distinct.

It is noteworthy that in addition to the gelatin injections during the first part of the cure the patient was put to bed on a low diet, and was given potassium iodide, together with the external application of cold.

Barth commends this method of cure not because he believes it is reasonably certain, but because he believes it may be helpful and at the worst can do no harm.

TREATMENT OF SUPPURATIVE LESIONS OF THE SKIN BY PEROXIDE OF HYDROGEN.

COCHART (*Journal de Médecine de Paris*, April 21, 1901) commends peroxide of hydrogen as both a prophylactic and a curative medicament in the treatment of various suppurative skin lesions so common in infants. A twelve-volume solution is ample as a skin wash twice daily. This rapidly cures superficial lesions. Abscesses must of course be evacuated before the peroxide solution prevents the development of new infection.

THE TREATMENT OF VULVAR VEGETATIONS BY PURE CARBOLIC ACID.

CAQUILLE (*Journal de Médecine de Paris*, April 21, 1901), after calling attention not only to the inconveniences but also to the actual dangers attendant upon extensive vulvar vegetations, observes that in carbolic acid is found one of the most efficient and least objectionable of the cauterizing medicaments. It is particularly applicable to sessile vegetations, either in patches or confluent and covering an enormous surface, and even to those small pediculated vegetations which often grow from diseased tissue.

Crystals of carbolic acid are placed in a porcelain vessel and warmed until they are dissolved. A little pledget of cotton is seized in forceps and dipped in the acid and then brushed over the surface of the vegetation, which has previously been cleansed of all discharge. This brush is carried into all the cracks, fissures, and recesses of the growth, the surrounding parts having been protected by a layer of vaselin. Every part of the diseased tissue must be thoroughly treated. In two or three days all the cauterized portions are washed away by lavage, leaving a raw surface which is again treated by the carbolic application.

The author states that this treatment is not painful, providing the surrounding healthy tissues are protected. The treatment is repeated every two or three days until a healthy granulating surface is left. The treatment does not prevent the patient from pursuing her usual occupation; in the meantime frequent washings with a mild antiseptic solution are made. The surrounding parts should be kept well greased with cosmoline to avoid irritation. It is said that even the most timid patients will submit to this treatment without complaint.

SERUM THERAPY.

In a discussion upon this subject held before the Paris Medico-Chirurgical Society, MOUTIER quoted Vidal to the effect that with the exception of antidiphtheritic serum there is not one which has fulfilled in man the hopes which laboratory study had apparently demonstrated as well founded; that antitoxic serums act neither upon the microbes nor the toxins, but upon the cells of the organism, aiding them in their struggle against microbian invasion; that the serum of immunized animals does not seem to have a specific action, but rather produces a general tonic effect; that considering the uncertainty of serum therapy, the artificial serum should only be employed under particular circumstances and when the indications are unusually direct. Attention was called to the fact that Talamon has demonstrated that the antidiphtheritic serum is efficacious not only against diphtheria but also against pneumonia.

Moutier quoted Cheron to the effect that whenever arterial tension is lowered it should be increased, and that the best way to increase arterial tension is by means of transfusion of artificial serum; that the hypodermic route is the one to be preferred in this transfusion; that all hypodermic injections produce identical effects provided they contain no toxic substances. These effects differ only in intensity. The composition and the quantity of the liquid injected should vary in accordance with the arterial tension.

Moutier believes that the modern surgical development of hypodermoclysis in the treatment of shock and hemorrhage and infection is simply a development of Cheron's idea. He believes that the beneficial effects of the copious injections so common now in practice are to be attributed only to the stimulation of the nervous system.

Cheron states that the action of the transfusion is not chemical but physical, or rather dynamic, expressing itself in the form of a stimulation of the vasomotors.

Moutier, after having practiced transfusion with artificial serum for many years, has abandoned this method of treatment for one which he considers much more active, namely, the excitation of the nerve centers by electrical currents of great frequency and high tension.

A METHOD OF CIRCUMCISION.

BILHAUT describes in the *Annales de Chirurgie et d'Orthopédie* for February, 1901, a circumcision which he performed on a boy eleven years old, whose short, tight prepuce was stretched over the glans and provided with an orifice situated considerably above its normal point and almost as small as a pin-point. Three radial incisions were made through the entire preputial thickness, after which the foreskin was retracted behind the corona. This retraction converted these radial incisions into three cuts running circularly about the penis separated by bridges of skin. The mucous and skin borders of these cuts were then united, and the operation was completed with no loss of blood and with no retrenchment of the prepuce, which was so short that there was no need of removing any part of it. As a result of the relief from tension the very small glans penis grew rapidly and shortly reached normal size.

MALFORMATION OF THE SCAPULA.

In the *Annales de Chirurgie et d'Orthopédie* for February, 1901, GOURDON calls attention to the literature on this affection.

The complaint is characterized by an elevation of the shoulder of the affected side, by the fact that the arm in exaggerated pronation is thrown out from the side, by atrophy of the entire shoulder, by a posterior projection of the lower angle of the scapula, and by the fact that this angle lies at a higher level than that of the scapula of the other side. Moreover, there is a rotary motion effected which causes lowering of the external angle, whilst the lower angle is thrown nearer the middle line than it should be. Because of the higher position of the scapula, the trapezius and the splenius of the affected side are increased in volume and the subclavicular fossa is encroached upon. Measurement from the suprasternal fossa to the outer border of the deltoid muscle shows shortening of the affected side. Functional disturbances are not very marked. It is found that the arm cannot be raised beyond a right angle from the body. There is also some limitation of rotation.

The author records four cases, all of them males; all on the right side, and all characterized by some arrested development in the bone. In three cases there was crepitation of the shoulder-joint suggesting the presence of exostosis. It was noted that as the children grew there was a tendency for the scapula to descend toward its natural position.

The condition is attributed to traumatism during labor.

The treatment should be mainly orthopedic, and should be directed toward giving a free range of motion to the shoulder, although Hoffa in one case divided the muscles attached to the upper part of the scapula and resected the lower angle of this bone. This was because in raising the arm this angle was jammed against the vertebral column, and thus rendered freedom of motion impossible. The result is said to have been good.

CONTUSIONS OF THE ABDOMEN.

SCUDDER (*Boston Medical and Surgical Journal*, May 2, 1901) points to some salient facts connected with contusions of the abdomen. The causes of the contusion should be investigated with great care, keeping in mind that the resistance of the abdominal walls varies with age, the state of the health, and the amount of contraction of the abdominal muscles. Usually, in these cases, the greater the force the greater the injury, but a trivial blow may result in serious damage to intra-abdominal viscera. A hollow organ, if distended, is more vulnerable than if empty. Inquiry should be made as to the last meal-time and as to the last micturition. The exact direction of the blow is important. The clothes of the patient sometimes offer some indication as to the injury.

Indiscriminate early exploratory operating for a diagnosis is to be deprecated. It is certainly better, however, to have operated many times, says Scudder, and found no lesion, than even once to have neglected operation when it might have saved a life. To intelligently determinte whether operation is wise or not, conditions of shock, hemorrhage, and the extravasation of visceral contents causing peritonitis are general conditions which demand consideration.

Shock will be manifested by a loss of consciousness. The loss may be more or less profound, dependent upon the degree of shock. There may be pallor and perspiration of the face, low temperature, vomiting and nausea, chilliness and coldness of the extremities; a small, irregular, compressible, and rapid pulse beat; superficial respiration; anuria; and less than the normal reaction to stimulation.

If recovery is delayed beyond about three hours, there is presumptive evidence of a grave intra-abdominal lesion. Increasing shock after partial recovery from primary shock should suggest intra-abdominal hemorrhage or visceral rupture; damaged tissues may be giving way. An absence of shock does not mean an absence of a serious lesion. Operation is absolutely contraindicated in profound and continued shock.

Dulness in the loin, which changes to resonance as the patient is turned to the opposite side, is suggestive of free fluid blood within the abdomen, if other signs of hemorrhage be present.

In hemorrhage there may be shock, together with restlessness, thirst, and a sighing respiration. Vomiting of blood may mean injury to the stomach or duodenum. Collapse with sudden exsanguination means rupture of a large vessel or extensive rupture of the liver or spleen. A slight rise of temperature is not incompatible with hemorrhage.

An increasing pulse-rate with a low or subnormal temperature means hemorrhage, and demands immediate surgical interference.

The gradual rise of temperature to the normal point, associated with a falling pulse-rate, is a favorable sign. A rise of temperature following an abdominal contusion usually means infection.

The consciousness of pain is diminished by shock. As the initial shock subsides, evidences of pain may appear. If the pain is dependent on hemorrhage, other signs of the latter will be present. Persistent local pain is important. In intestinal injuries it often points to the lesion.

Honest tenderness—that is, unbiased by the personal equation—coupled with pain, are the two most valuable signs pointing to the localization of intra-abdominal lesions.

Vomiting is very generally an early sign of shock. Vomiting without other evidences of shock is significant, and vomiting which reappears after it has once ceased should cause concern.

Distention, with other signs of peritonitis, suggests serious infection.

Peritonitis is indicated by rigidity of the abdominal muscles and tenderness. These accompanied by pain unmistakably point to peritonitis.

Two classes of cases should not be operated on at first: (1) That class in which little or no shock is present, and in which there are absolutely no localizing signs; (2) that class in which profound shock, amounting perhaps to collapse, exists. Immediate operation is demanded in persistent moderate shock, with or without localizing signs. Immediate operation is demanded in cases of progressing hemorrhage, and in cases of peritoneal infection.

TALLERMAN SUPERHEATED DRY-AIR SYSTEM FOR THE TREATMENT OF SCIATICA, ARTHRITIS DEFORMANS, AND SCLERODERMA.

NEUMANN *(Lancet,* March 30, 1901) says it is seldom that a specific method of treatment withstands the test of years and continues to fulfil its original promise so well as the Tallerman system for the application of superheated dry air.

Two different forms are used: (1) for the pelvis, and (2) for the extremities. The apparatus can be heated by electricity, by gas, or even by oil, and the temperature in the interior is brought up to 300° F. When any portion of the body is inserted in the cylinder the floor on which it rests is protected by a cushion of asbestos resembling a thick layer of felt. Above this and around the limb a covering of woven asbestos, like lint in appearance, is disposed. The patient, completely undressed, is comfortably wrapped up in loose cotton wraps and blankets on account of the profuse perspiration which usually occurs during and after the sitting, and also to ease the respiration and the action of the heart. Obviously the limb is not exposed to the direct action of the hot air. The loosely clothed portion of the body inside the apparatus experiences in general no disagreeable sensations from the heat. Where the covering comes in direct contact with the skin the feeling is only one of moderate warmth, but where between the folds hot air has free access to the cuticular nerves there is the sensation of a very intense but comforting heat. The dry air enveloping the limb obviously draws from it a large amount of moisture, and thus more blood is forced to flow from the deep-seated tissues, where it is cooler, to the heated surface and into the dilated vessels of the skin.

It is a fact that the covering of a limb under treatment becomes moist, but no scalding has ever been noted.

There are considerable variations of temperature inside the cylinder in the course of an hour. Immediately after leaving the apparatus the limb is injected and of a uniform red, but has not the slightest appearance of cyanosis or stasis. During treatment the whole body falls into a pleasant perspiration; the pulse is accelerated by some 10 to 20 beats in the minute, but is not noticeably full or dicrotic, still less small and irregular. Cardiac or cerebral sensations of a disagreeable character only occur in highly nervous patients. Neumann has been able to apply the treatment without anxiety to patients suffering from arteriosclerosis, myocarditis, and moderate valvular disease.

There is never an important rise in the body heat. The treatment never induces albuminuria, but rather it diminishes existing albuminuria in organic kidney disease.

The general stimulation of the circulation and of perspiratory excretion may produce relaxation of the tissues and relief from pain. It is doubtful, in the opinion of Neumann, if in arthritis deformans, for instance, or in neuralgia such as sciatica, a striking and immediate remission of pain sets in. It is unquestionable that in many

cases the curative action continues after treatment.

Observation has shown that the treatment, energetic as it seems to be, produces no ill effects either on the local seat of mischief or on the whole system.

As senior physician to the Landesbad, Germany, where Tallerman installed his apparatus for the public use at the request of the Baden government, Neumann has had abundant opportunities of employing the treatment. In the course of the year 1900 there were treated seventy cases of sciatica and lumbago, thirty-five cases of arthritis deformans; chronic arthritic rheumatism, badly mended fractures with interruption of the circulation, severe sprains of the pelvis and spine, painful cicatrices and contractions after gunshot wounds, three cases of scleroderma, one of myxedema, and also cases of inflamed flatfoot. No result whatever was obtained in three cases of sciatica, in one of sciatica and lumbago with special involvement of the ilioinguinal nerve, and in one of ankylosis of the knee-joint following operative removal of rice-seed bodies. Unequal results were obtained in two cases of arthritis deformans, the hands being improved as regards swelling and mobility, while the knees remained unaffected and very painful. Unimproved also were two cases of apparently old fracture of the femur with severe concussion of the pelvis, and hardly any success was obtained in one case of inflamed flatfoot and one of scleroderma, in which only the hands were relieved. All the remaining cases were either substantially improved or completely cured. In many cases the improvement was of such a character as to make a truly wonderful impression upon the patients and their friends; some of these cases would have otherwise remained uncurable.

In England the morbid conditions dealt with are chiefly rheumatic neuritis, chorea, gout, chronic rheumatism, rheumatic arthritis, stiff and swollen joints, sprains and ruptures of joints, fractures, inflamed flatfoot, and they have also treated eczema.

SOME RECENT DEVELOPMENTS IN THE ADMINISTRATION OF ANESTHETICS.

HEWITT *(Lancet,* March 30, 1901) believes the system of administering nitrous oxide and ether in succession, introduced many years ago by Clover, to be the best system. There are several serious objections, however, to the administration of anesthetics under this or any other system, and Hewitt has devised a method of administering "gas and ether" which is more satisfactory. He made experiments with inhalers of various-sized bores, and found that with an inhaler with a wide bore, and intended for administering nitrous oxide and ether in succession, there was a lessening of stertor and cyanosis. The patient passed smoothly, with little or no respiratory derangement, from the anesthesia of nitrous oxide to that of ether.

Hewitt finds it possible, by having a fixed ether reservoir, to introduce ether when the patient is partly anesthetized by nitrous oxide. The administration is thus conducted: (1) A face-piece of appropriate size having been fixed to the ether reservoir, the latter is, in cold weather, partly immersed in hot water for a few moments; the indicating handle is placed at zero, and the plug of the filling-tube is removed. (2) A two-gallon gas-bag partly full of nitrous oxide (the amount varying with the type of subject) is fitted to the reservoir. (3) The patient is instructed to breathe freely backward and forward through the mouth, and air will enter and leave the lungs through the valves in the gas-bag stop-cock. (4) Nitrous oxide is now turned on, and after two or three expirations have escaped at the expiratory valve the valve action is stopped and the remaining quantity of nitrous oxide is breathed backward and forward. (5) Immediately this has been done about from one and a half to two ounces of ether is rapidly introduced through the wide and open filling-tube, and the plug is replaced. It is important that the face-piece should accurately fit the face during these procedures. (6) The regulating handle is now progressively moved from zero to ¼, ½, ¾, or full, these markings indicating the proportions of the current thrown over ether. (7) At the end of about one minute, or possibly earlier in some cases, a breath of air is admitted at the stop-cock of the gas-bag. (8) At the end of about one and a half minutes the gas-bag is replaced by a smaller bag, and the administration is thenceforward conducted as with Clover's inhaler, the regulating handle being kept at that point which seems most suitable to the particular case.

In whatever posture the patient may be placed, the ether reservoir may be so adjusted to the face-piece that the opening

through which the ether is poured in can be used without removing the apparatus from the patient. A glass window in the plug of the filling-tube shows the quantity of ether in the inhaler.

By a nitrous-oxide-ether-chloroform sequence there is obtained the advantages of chloroform without at the same time experiencing one of its chief disadvantages; the struggling stage is passed over whilst the patient is under nitrous oxide and ether. The disadvantages of ether also are largely eliminated, for the quantity of ether inhaled, although sufficient to impart to the administration characters such as it could never otherwise acquire, is insufficient to prejudicially affect the recovery period. The return to normal consciousness, indeed, is altogether more satisfactory than after ether alone. A change from ether to chloroform should never be made whilst the patient is struggling. The change should not be made unless there is evidence that the patient is not profoundly anesthetized by ether. In employing this sequence it is a good plan to administer ether until the corneal reflex has just disappeared, to remove the ether inhaler for a few breaths of air, to allow a slight cough to occur to free the larynx of any mucus which may have entered it, to watch for the first indication of returning corneal reflex, and then to begin the chloroform inhalation. It is particularly important in case of abdominal operation that a cough should be allowed before the chloroform is begun, and the change from ether to chloroform should be effected before the operation is begun. Hewitt has found, as regards the depth of chloroform anesthesia which should be maintained, that when once patients have been placed well under ether and have then been allowed to clear the larynx, that it is not necessary to subsequently maintain a very profound chloroform narcosis. If, however, the change from ether to chloroform be effected without the larynx having cleared itself, the mucus present in this organ may persistently tend to excite local and even distant spasmodic states, probably leading the anesthetist to administer a dangerously large dose of chloroform. A case has been seen in which during a deep chloroform anesthesia, whilst the breathing was somewhat shallow, the presence of ether-mucus within the larynx apparently acted as the last straw and arrested breathing. Simple chest compression quickly dislodged the mucus and restored respiration.

The nitrous-oxide-ether-chloroform sequence is particularly appropriate in the surgery of the mouth, throat, and nose. As a general rule it is advisable in these operations to place the patient well under ether, to insert the gag and any necessary appliance for maintaining anesthesia, and then to allow a slight recovery. From this moment onwards Hewitt keeps up the anesthesia by means of a Junker's inhaler. The one employed by Hewitt is so made that no mistake can occur in adjusting the wrong india-rubber tubes upon the mounts of the bottle, and the apparatus is provided with a metal stop-cock which when turned converts the chloroform receptacle into a stopper-tight bottle which can be packed away in a bag without removing the chloroform.

What he calls a chloroform prop has been devised by Hewitt to replace the stretching and distorting gag used in certain nasal and oral operations. It is a solid wedge-shaped metal prop which can be inserted in wedge fashion between the molar teeth. It has side flanges to prevent lateral displacement, and the parts of the prop which come against the teeth are made of lead to allow of the prop being gripped when in position. A bent metal tube for the transmission of chloroform vapor from an inhaler is fixed to the prop, in the inner and back portion of which is an orifice through which the chloroform vapor is pumped into the fauces. The little appliance is of great use in maintaining anesthesia during throat and nose operations upon patients in the sitting posture. Provided that anesthesia be induced by ether, that all respiratory embarrassment be avoided, and that too profound a narcosis be not maintained, chloroform may, Hewitt believes, be safely administered to patients thus placed.

TREATMENT OF PRURITUS ANI.

TUTTLE (*International Journal of Surgery*, May, 1901) says that the local treatment of pruritus ani, where there is no ulceration or distinct pathological change, is simply a palliative adjuvant to the general treatment. He believes it of the utmost importance, however, for upon success in giving the patient immediate and marked relief will depend his confidence in the methods employed, and also his faithfulness in carrying out instructions. The itching may be relieved, the nervous condition may be quieted, and there may be obtained for

the patient rest and sleep, both of which are necessary to the restoration of his physical tone. Among the chief and simplest of the remedies for this purpose is hot water. The patient should be instructed to bathe himself before retiring with water as hot as he can bear it, without any scrubbing or rubbing. The bath may be repeated in the night if itching occurs. It is generally well, however, to use some other local application after the bathing. The old-fashioned lotion nigra is one of the best, and next to this comes some form or mixture of carbolic acid. Tuttle has found nothing so useful as a combination of this drug with salicylic acid and glycerin. He employs the following formula:

℞ Acid. carbolici, 3ij;
Acid. salicylici, 3jss;
Sodii biborat., 3j;
Glycerinæ, 3i.

Sig.: Apply at bedtime and during night if necessary.

Methylene blue, one to five per cent, is an excellent local remedy. Camphophenique applied after the use of hot water is frequently very useful in allaying the symptom of itching, and in giving the patient a good night's rest. Chloral hydrate, 20 to 30 grains to the ounce of glycerin and water, sometimes affords almost instantaneous and prolonged relief, but in some cases it may make the itching worse. Ichthyol in an ointment of five to twenty per cent is occasionally very soothing and curative in cases where there are considerable external inflammatory conditions, especially where there is an erythema or eczema about the margin of the anus. In cases where there is a fissure, or in those marked cases of atrophic catarrh in which the mucocutaneous border cracks whenever it is stretched, the following ointment is very effectual:

℞ Ext. conii, 3ij;
Ung. stramonii,
Lanolini, āā 3j.

Sig.: Apply well at bedtime and before having stool.

Where there is a tendency to too great moisture, as in those cases of hypertrophic catarrh, or ulceration at the margin of the anus, some sort of drying powder should be used during the day, being frequently applied in order to prevent chafing and to absorb the discharges. Oxide of zinc and calomel in equal parts is a cheap and efficient application in this condition. Aristol, stearate of zinc, bismuth, boric acid, and talcum powder are all useful for this purpose.

Tuttle believes that the large majority of cases of pruritus ani are due to some catarrhal condition of the rectum and sigmoid flexure, to fermentative indigestion, or to uricemia and rheumatism, and if these conditions are properly remedied the pruritus will radically disappear. In the meantime, local applications will be necessary to give temporary relief while the constitutional treatment is being carried out.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A. Oxon., M.D., F.R.C.P. Lond.

The important event of the medical month has of course been the Congress of Tuberculosis that has just finished its session in London. Much of its success must be credited to the admirable organization of the indefatigable general secretary, Mr Malcolm Morris. You will have full reports of the papers and discussions in the various sections in due course in the *British Medical Journal* and *Lancet*, but I will endeavor to give some general impressions in outline of the points that appealed chiefly to the casual listener. Of course, the *pièce de résistance* was the bombshell that Professor Koch thought fit to explode at the second general meeting. I refer, of course, to his opinion that bovine tuberculosis is probably not transmissible to man. This opinion, however, failed to find support in any quarter of this congress of international scientists. The mistake of such a dictum at this time, except upon incontrovertible evidence, can hardly be overestimated. Was this evidence incontrovertible? This is a question that is open to any one of us to answer, for the great scientist himself supplied the facts, and we have only to balance the evidence. In the first place, he produced a number of his own experiments to show that human tuberculosis was not transmissible to cattle and to certain other animals; while subsequent experiments showed clearly that these same animals were intensely susceptible to bovine tuberculosis. From this he inferred an essential distinction between human and bovine tuberculosis. Professors Bang and Crookshank, however, claimed to have successfully communicated human tuberculosis to cattle, and if we can accept these isolated instances as well founded, the whole fabric of Koch's argu-

ment falls to the ground. The further question of the communicability of bovine tuberculosis to man is not of course susceptible of direct investigation, but inasmuch as butter and milk can often be found teeming with the bacilli of bovine tuberculosis, the experiment is being constantly made. Koch's argument is that if it were communicable to man we should encounter a much greater frequency of primary intestinal tuberculosis than is actually the case. It must be remembered, however, that to infect the intestine it is necessary for the bacilli to pass through the stomach and maintain their virulence unimpaired. In chronic pulmonary tuberculosis swarms of bacilli must be swallowed daily in the sputum and saliva, but yet how comparatively few cases of advanced pulmonary tuberculosis show also well marked intestinal tuberculosis. Further, if cases of tabes mesenterica must be referred to infection from the food, the frequency of alimentary tuberculosis will be greatly increased. In England we have succeeded beyond question in greatly diminishing the prevalence of tuberculosis, and this with practically no restrictive measures other than those relating to the supply of milk and meat.

From this very debatable ground Professor Koch passed to his main thesis, that human sputum is the main source of human tuberculosis, and that our measures will be successful in proportion as they adequately combat this source of infection. Such infection is very liable to be underestimated, because its effects only become evident after considerable lapse of time. It is the overcrowded dwellings of the poor that are the real foci of tuberculous infection, and the better housing of the poor would strike at the root of its prevalence; but while awaiting this millennium Koch urges several subsidiary measures of first importance. The first of these is the provision of special hospitals for consumptives, so that treatment in some sort of voluntary isolation may be secured. Koch attributes the diminution of tuberculosis in this country to the existence of such hospitals, but we fancy that this opinion would have been modified had he known how few beds are provided in such hospitals, and how very few are reserved exclusively for phthisical cases. Next in importance ranks compulsory notification. At present in this country we have only attempted a limited and voluntary notification, which, though good as far as it goes, is quite incapable of sufficient growth. There is no question that the nation would readily submit to compulsory notification of tuberculosis of the same rigid order as applies to other communicable infectious fevers. Notification is the only portal by which disinfection can enter and step in between the diseased and the healthy. A further effective measure must be the instruction of the public in the nature of tuberculosis, its infectious character, and the means of dealing with infective material—that is to say, in the main, with sputum. The Society for the Prevention of Tuberculosis has already done much in a short time in this direction by supplying leaflets to phthisical patients in hospital out-patient departments, and also by public notices forbidding spitting. If we cannot make spitting penal we can at any rate instruct our children in the danger and dirtiness of the habit. "Public spitting is dangerous and dirty" as a copy-book maxim would promote caligraphy quite as successfully as "Cleanliness is next to godliness," and without provoking odious comparisons would soon train up a race who would respect their neighbor's boots as much as his face.

In concluding his remarkable address, Professor Koch threw out a warning lest the modern craze for sanatoria should divert attention from the prevention of tuberculosis to its cure. The number of phthisical patients cured by sanatoria, even with a much wiser selection than is now made, can never be sufficient to exercise an appreciable influence on the retrogression of tuberculosis.

A very interesting section was that devoted to climatology. The chief papers in this section were those by Dr. Theodore Williams and Dr. Burney Yeo, on the classification of climates and of cases respectively. *Quot hominum, tot sententiae,* and in the papers and in the discussion on the papers one heard men of equal eminence and experience variously maintaining that climate is immaterial so long as the air is pure and the patient gets enough of it; that climate should be adapted to the special type of morbid process; that climate is only beneficial in so far as it is adapted to the constitution and physical peculiarities of the individual patient. It seemed to us that Dr. Burney Yeo has suggestively wrapped up the general sense of the various speakers in his dictum that "care without climate is better than climate without care." It was

pretty conclusively shown that there is no climate even in our much-abused British Isles incompatible with the complete arrest even of advanced phthisis. Our own marine stations have at any rate the advantage of accessibility, but for the catarrhal cases they must remain inferior to the warm marine stations of the Canaries, Madeira, and the West Indies. Sir Herman Weber, however, speaking from an almost unique experience, questioned the beneficial effect of marine stations *in toto*, and attributed their unfitness to the prevalence of wind. Sea voyages, too, came in for a good deal of adverse criticism, because of the difficulty of securing proper food and efficient cabin ventilation, sufficient exercise and adequate occupation. Moreover, in most main steamer routes the necessity arises of passing the tropics. Dr. Williams recommends specially the voyage to Australia and New Zealand, that to Brazil by Lisbon and Teneriffe, and the Royal Mail route to the West Indies; he also considers sea voyages most suitable to hemorrhagic cases, to phthisis associated with other tubercular lesions such as strumous glands or joints, and to cases of chronic unilateral excavation in a quiescent phase. It was somewhat surprising to hear so little said in favor of the dry, warm climate of the Egyptian desert and the Mediterranean littoral, where the dryness and warmth render an open-air life by day and by night especially attractive. Dr. Williams considers that these climates are specially indicated in cases of chronic cavity; yet while doing much to reduce the secretion from the walls of cavities they seldom or never promote complete arrest, and certainly do nothing to render patients more fit to resist the vicissitudes of the British weather. Contrariwise, his personal statistics serve to show the most remarkable improvement in a wide variety of cases under the influence of high altitudes. Foremost among these he sets Davos, St. Moritz, Arosa, Colorado, and the South African Highlands. He finds high altitudes most beneficial in hemorrhagic phthisis, in phthisis with strongly marked hereditary predisposition, and in chronic phthisis in general, provided the extent of lung involved is not too large or the disease accompanied by much fever. Many factors combine to this end, such as the aseptic air, its stimulating effect on the circulation and also on respiration, producing compensatory hypertrophy of the lung, and the improved tone of the muscular and nervous systems. There was close agreement between most of the speakers and in most of the papers as to the classes of cases unsuited for high altitudes: such are acute phthisis, catarrhal phthisis, laryngeal phthisis, phthisis in subjects of nervous temperament, fibroid phthisis, and phthisical subjects specially susceptible to cold. Dr. Burney Yeo has also found high altitudes unsuitable to phthisical patients of rheumatic or gouty constitution, and considers them best suited by dry marine or the desert climates.

In the State and Municipal Section one of the best papers was contributed by Dr. Biggs, of New York, on the "Notification of Tuberculosis." In this respect we are at present much behind our transatlantic brethren, but the knowledge that there no difficulty has been found, even in a limited compulsory notification, should do much to reconcile the public mind to it here. In Manchester a system of voluntary notification, detailed by Alderman Macdougall, has already met with some considerable degree of acceptance. In addition to making disinfection practicable, the system has enabled the medical officers to collect a great store of facts illustrating the sources of infection, and the places which had served as centers of diffusion, and also the need for municipal hospitals in addition to the poor-law infirmaries and private sanatoria. It has also enabled Dr. Coates, of Manchester, to make a series of investigations on the influence of housing and aggregation on the spread of tuberculosis, which he briefly described. It was found that in fifty per cent of even the cleanest houses infectious dust could be found when the phthisical occupant used his handkerchief or the floor as a receptacle for sputum, and in the dirtier houses the proportion was as high as sixty-six per cent. The well ventilated and well lighted waiting-room of a large consumptive hospital gave negative results, while the general waiting-room of one of the railway stations afforded abundant evidence of the ubiquity of the bacillus. For disinfection he prefers and uses Delépine's method—a solution of chlorinated lime of the strength of 1½ ounces to the gallon. The walls, ceiling, floor, and any practicable furniture were washed over several times with this solution, while bedding and clothing were disinfected by steam. In the cleaner houses the less vigorous method suggested by Esmarch was employed: the wall-paper was rubbed with bread or dough; floors, painted walls,

and woodwork washed with soap and water, and ceilings lime-washed. He found this method useless when the wall-paper was soiled with sputum, as the mucin rendered it so tenacious.

Not much fresh knowledge was derived from the discussion on the therapeutic and diagnostic value of tuberculin. Professor Koch and Dr. Heron stoutly championed its efficacy in suitable cases, in the early stages of the disease. They attributed the present disfavor to its use in advanced cases and in excessive doses, and also to neglect of the rule that a dose should never be given until the patient's temperature has been normal for at least twenty-four hours. This contraindication and the frequency of mixed infection must in the nature of things materially limit its area of usefulness. The meeting appeared to have more faith in its value as a diagnostic agent, so rendering treatment possible in the earliest stages; some, however, considered its use attended by danger even in the earliest stages. Apropos of Professor Koch's opening remarks on the essential difference of human and bovine tuberculosis, it was interesting to elicit from him the information that the tuberculin used for diagnostic purposes in bovine tuberculosis was prepared from human bacilli. He held that the two organisms possessed a common "group reaction."

In the Veterinary Section Professor Macfadyean vigorously controverted the views of Professor Koch on bovine tuberculosis, and it is comforting to find in all the contributors to this section an obstinate adhesion to orthodoxy until better evidence is forthcoming.

THE TREATMENT OF DYSENTERY.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: In your last issue I find an abstract of an interesting article by Buchanan in *British Medical Journal* on the saline treatment of dysentery. As explained in the paper, this treatment is applicable only to the acute catarrhal form of the disease. In an experience of more than twenty years I have tried the various plans of treatment recommended in the books and elsewhere. No remedy or combination of remedies has given me the satisfaction that I have obtained by the use of the combination given below. When called to a case of acute catarrhal dysentery I usually prescribe the following:

℞ Acid. sulph. arom., f℥ss;
Tinct. opii deodorat., f℥ss;
Magnes. sulph. (sat. sol.), ℥ij.

M. Sig.: Shake and give teaspoonful in water every three hours.

This treatment should be commenced as early in the case as possible and continued until the bloody and mucous stools have changed to liquid or ordinary fecal discharges, which will usually be the case in from 24 to 48 hours. In mild cases where there is little or no pain and tenesmus the opiate should be omitted. Buchanan uses the sulphate of sodium, but I think it immaterial whether the sodium or magnesium salt be used. In this prescription we have an antiseptic astringent, anodyne, depletory, and evacuant combination. When the stools become free from blood and mucus other appropriate medication should be substituted for the saline treatment.

Respectfully,

C. J. MARCH.

FORDYCE, ARK.

SUPRARENAL GLAND IN HEMOPTYSIS.

To the Editor of the THERAPEUTIC GAZETTE:

SIR: In several cases of hemoptysis where I have used the now popular suprarenal extract it has been given when the catamenia was present. In each case within twelve hours the menstruation nearly ceased, returning again after omitting the extract. I should like to learn, through the readers of the GAZETTE, whether others have had the same experience; also whether it might not be useful in cases of profuse menstruation.

Yours truly,

G. W. TINKHAM.

WEYMOUTH, MASSACHUSETTS.

PUERPERAL ECLAMPSIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: On page 506 of the August 15th issue of the THERAPEUTIC GAZETTE the printer has made an important error to which I think attention should be called. In the first line of my letter "the past year" should read "the past ten years." An experience of eighty cases of eclampsia in one year is so far from a possibility in one man's practice that I shall probably be criticised for not being accurate in my statements if this correction is not made.

Yours truly,

RICHARD C. NORRIS.

—THE—

Therapeutic Gazette.

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Original Communications.

*ESOPHAGOTOMY IN CHILDREN FOR FOREIGN BODIES, WITH THE REPORT OF A CASE AGED SIXTEEN MONTHS, AND THE REMOVAL OF A METAL CLASP WHICH HAD BEEN IN THE GULLET FOR SEVEN MONTHS.**

BY WILLIAM J. TAYLOR, M.D.,

Attending Surgeon to the Orthopedic Hospital and Infirmary for Nervous Diseases, and to St. Agnes Hospital; Consulting Surgeon to the West Philadelphia Hospital for Women, Philadelphia, Pa.

A little boy aged sixteen months was sent to me by Dr. C. M. Sherron, of Salem, New Jersey, in October, 1900. On the 18th of March, 1900, nearly seven months before, he had swallowed a metal clasp known as a "drawers holder." Immediately after the accident his father made an attempt to remove it, and told me that he was able to touch the upper end with his finger passed well down the throat, but in his efforts to extract it without forceps he pushed it farther away from his finger and out of his reach. A doctor who was called in saw him in about an hour, but made no special attempts to remove it. The baby was fretful for three days and three nights, but was able to nurse and had no special attacks of dyspnea or pain, although immediately after the clasp was swallowed he was unable to cry out, probably from pressure on the recurrent laryngeal nerve. At no time since

*Read at a meeting of the Philadelphia Pediatric Society, May 14, 1901.

then could one hear his cry further than across the room.

On April 5 he was brought to Philadelphia and taken to a hospital, where a fluoroscope was used and an unsuccessful attempt made to take a skiagraph. The child's parents were told at that time by the surgeon who saw him that no foreign body was present. At no time did he vomit blood, and only once was there any bloody mucus discharged, and that was immediately after swallowing the clasp. This was possibly due, in part at least, to the efforts of the father at its extraction. There was no special cough or difficulty in breathing, but there was a great deal of rattling and many râles in the chest. He always nursed well, but had been unable to swallow any form of solid food.

Metal clasp, actual size, front view.

Metal clasp, actual size, side view, showing clip open.

At my request Dr. Leonard etherized the child and made a very careful skiagraph. This when developed showed absolutely the position of the foreign body and also that the clip on the end of the clasp was open. The tip of the clasp was directly on a line with the sternoclavicular articulation.

On October 27 ether was given him at the Orthopedic Hospital and an attempt made to reach the clasp by forceps passed down the esophagus. In this I was unsuccessful, as the distance was too great and it was considered unwise to make a prolonged search. The position of the clasp as afterwards shown would have made an attempt at extraction through the mouth particularly dangerous, and in any subsequent case of the kind I should make no effort whatever to do this if a similar foreign body had been swallowed longer than a few hours.

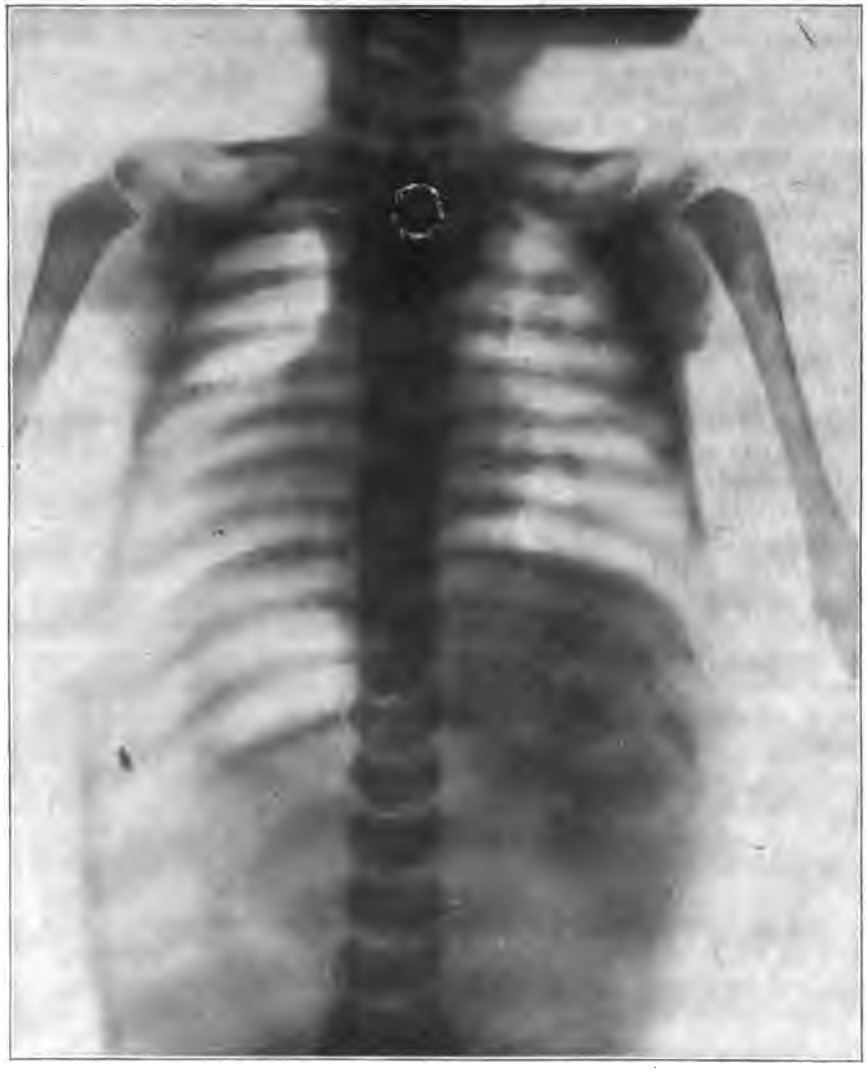
I then immediately opened the left side of the neck and worked down until I found the esophagus, and through its walls I could feel the sharp points of the clasp. This I did without passing any sound or metal probe down through the mouth to act as a guide. I then opened the esophagus, and here my difficulties began. The large hook in the clasp had evidently ulcerated at least partly through the wall of the esophagus, and in attempting to withdraw it I hooked up and pulled upon probably the bifurcation of the bronchus, and the child nearly died in consequence; and it was only with the greatest care and after considerable manipulation that I was able to get the clasp out. The clasp when swallowed was nickel-plated, clean, and bright, as it was new, but when it was removed all of the nickel-plating had been cleaned off, evidently by the action of the tissues, not a particle of it remaining. As the opening was made in the esophagus bubbles of air welled up from the lowest and deepest part of the wound, which made me fear for a moment that the wall of the trachea had been ulcerated through, but upon closer inspection it was seen that this was air which had been imprisoned by a valvular flap of soft parts. There was so much ulceration and the tissues were so lacerated that I did not think we could possibly get primary union in the wound, and I therefore drew the edges of the wound in the esophagus together as closely as possible with a few catgut sutures, then closed the upper portion of the external wound with two sutures, and packed the lower portion down to the esophagus with iodoform gauze. The baby was so young that I was afraid not to give it some nourishment by the mouth, and therefore allowed it to nurse, but each time the milk would all run out of the hole in the neck. We kept this up for about forty-eight hours, using in addition nutritive enemata, until I thought it imperative that we get some food into his stomach. I tried to put a catheter down the mouth into the stomach, but could not get past the point in the esophagus from which the clasp was removed without using unjustifiable violence. I then packed the wound in the neck with cotton and made pressure with my finger while the child nursed, and in this way we were able to give it a considerable amount of nourishment, although a great deal escaped from the edges of the wound. During the night the child nursed every four hours, and we soon got the hang of matters so that quite a considerable amount of nourishment passed into the stomach. Indeed, the stomach was appreciably distended after the nursing. Each time that he was nursed the dressing was removed, and a pad of cot-

ton pushed into the wound and held there by firm pressure.

His convalescence was uneventful; the wound in the esophagus and in the neck gradually closed by granulation, and no fluids whatever passed out of the wound after November 16—twenty days after the operation—and by December 1 the wound was entirely closed. The last heard of the child was on March 25, 1901, when he was reported as being perfectly well and strong and able to eat solid food without any difficulty. Thus far it would seem there is no stricture of the esophagus.

The case is particularly interesting on account of the age of the child (sixteen months at the time of operation), the length of time the foreign body had remained in the gullet (seven months), and the speedy recovery from such a severe operative procedure. The fact that he was able to take nourishment all the months before operation in sufficient quantities was due to the fortunate circumstance that he was being nursed by his mother, and that he had, on account of his age, never depended upon solid food.

When he was first seen he was rather poorly nourished, was pale and delicate looking; he had considerable cough and large bronchial râles; and when he cried the cry was so low that you could hardly hear him across the room—in fact, you would have thought that he was wearing a tracheotomy tube.



This same condition I have noticed once before in a small colored child aged three years who had swallowed an iron jackstone, and an account of whose case I published some years ago in the *Annals of Surgery*. The jackstone was in the esophagus and

caused such pressure upon the trachea that I had to do a tracheotomy immediately for the dyspnea. Although I was able subsequently to remove the jackstone by the mouth without opening the esophagus, he died of exhaustion. Here I believe it would have been much safer for him had I opened the esophagus in spite of the wound I had made in the trachea, than to have lacerated the soft parts as I did in my efforts at extraction by forceps.

There were no particular difficulties in the operation beyond the very minute anatomy of the neck in such a young child. It was not thought necessary to pass a guide through the mouth and into the esophagus, as the tissues were readily recognized as they were reached. The anterior jugular vein was avoided and the carotid sheath easily recognized, and the vessels retracted while the trachea was pulled forward. The sharp points of the clasp could be distinctly felt through the thin esophageal wall and at the exact spot as shown by the skiagraph, but the esophagus was very difficult to open owing to its extreme softness. It was caught up with a pair of forceps and a small nick made transversely with a sharp knife; the opening was then enlarged longitudinally with scissors. The space was so small and the tissue so soft that I could not make a longitudinal opening with the knife even after several attempts were made. It is for this reason that most operators have used a guide passed through the mouth and down to the point at which it is desired to open the esophagus.

In the paper by Drs. W. T. Bull and J. B. Walker *(New York Medical Record,* March 6, 1897, p. 330) is given a table of all of the cases of esophagotomy for foreign body up to that time. Included in this is Dr. Le Roy McLean's case *(Medical Record,* Sept. 13, 1884) of an infant of sixteen months who had swallowed an ordinary nickel cent. His physician concluded that it had passed into the stomach, and directed that the stool should be watched. The next day he regurgitated almost all the food taken. A probang with sponge attached passed into the stomach and seemed to afford relief for a time. Two days after this an olive-pointed probang was passed without any effort, nor did it come in contact with any foreign body, but food was persistently regurgitated. The symptoms were pain, dysphagia, regurgitation, and inanition. On the seventh day after the penny was swallowed esophagotomy was done. At this time a metal catheter passed down the esophagus gave a distinct click when it reached the level of the clavicle. The dissection was slow and tedious on account of the minute anatomy of the patient, but the esophagus was finally opened upon a laryngeal brush-holder which was used to push the esophagus forward. The penny was found where it had been located previous to the operation, on a level with the clavicle. The wound was not closed but packed, and the recovery was rapid and complete. There was no impairment of the voice.

Schramm *(Centralblatt für Chirurgie,* 1896, p. 211) reports an esophagotomy on a child aged one year, who was operated on two days after the foreign body was swallowed.

B. F. Curtis (personal communication to Dr. Walker) operated upon a child of three who had swallowed a cotton bandage pin three weeks before. Here the esophagus was sutured and the wound packed. The recovery was rapid, the child swallowing in twenty-four hours, and the deeper wound healed in seven days.

Maylard *(Glasgow Medical Journal,* 1896, p. 216) reports a case of a child of three who had swallowed a penny and was operated upon two days afterward. It was found behind the head of the sternum. The esophagus was sutured, the wound packed, and a drainage-tube used. Recovery was rapid, and the child was nourished by enema.

All of these cases occurred before the time of the general use of the *x*-ray apparatus, which would undoubtedly have been of great service in locating the foreign body.

Dr. W. W. Keen (THERAPEUTIC GAZETTE, April 15, 1898, p. 233) operated upon a child of thirteen months who had swallowed a jackstone. No attempt was made to withdraw the foreign body, but a skiagraph was taken, which showed the jackstone opposite the bodies of the fourth and fifth cervical vertebræ. Four days after the jackstone was swallowed an esophagotomy was done, after it was found impossible to get a whalebone bougie past the obstruction. The child was fed every four hours for forty hours by the rectum with milk and twenty drops of whiskey. The next day the child nursed for the first time and took food pretty well, a slight amount of milk passing into the wound. The child died apparently of exhaustion forty-eight hours after the oper-

ation. This result would rather show the need for nourishment by the stomach in all these cases of young children, as nothing was given by the mouth for forty hours.

In an editorial in the *Annals of Surgery* for August, 1896, Dr. J. William White reports the case of a child aged two years and five months, where a jackstone in the esophagus was very clearly shown by a skiagraph. This had been in place for twenty days. The jackstone could be seen a little to the left of the middle line, apparently on a level with the space between the second and third dorsal spines. After an attempt to reach the body with various forms of esophageal forceps had failed, it was determined to do a gastrotomy. This operation was selected because of a very short and fat neck in the little patient, which would permit only a very small wound in the neck, and because of Terrier's dictum that excludes all cases of esophagotomy in which the foreign bodies are situated in the thoracic portion of the canal. After the stomach was opened a finger was introduced and soon found the cardiac opening of the stomach. A slender, flexible, esophageal explorer, carrying a stout silk thread three feet in length, was then pushed downward through the pharynx, and with some difficulty was made to pass the obstruction and enter the stomach. One end of the thread was then hung out of the wound and the instrument withdrawn, leaving the other end hanging out of the mouth. Pledgets of gauze of various sizes were then introduced into the pharynx and were drawn upward and downward, most of the time being arrested at the point of constriction; some of them passed through the bars and spokes of the jackstone, but left it unmoved. In a few minutes, however, the piece of gauze brought the latter with it into the stomach, from which it was rapidly extracted. The child made a rapid and complete recovery.

In Bull and Walker's tables is given a case of Alexandroff *(La France Médicale et Paris Médicale P. Med.*, 1892, p. 235). A child aged two years swallowed a button; there were symptoms of pain, bloody mucus, and dysphagia. He was operated upon in two days, the foreign body removed, and there was complete recovery in twelve days without any complications.

Gay *(Boston Medical and Surgical Journal*, 1892, p. 332) refers to a case of a child three and a half years of age who had swallowed a one-cent piece. There was pain, gradually increasing dysphagia, and emaciation. Eight months afterward he was operated upon and the cent found two inches below the top of the sternum. He made a complete recovery in twenty-five days.

Jalagurie *(Rev. de Chir.*, 1893, p. 339) reports a case of a child two and a half years old who had swallowed a small piece of lead; there was pain and dysphagia. He was operated upon on the sixth day. The foreign body was found on the level of the head of the sternum, and the esophagus was closed by catgut; the wound was packed without sutures. He was nourished for three days afterward by enemata, and then with milk by the mouth, and in eleven days was well.

Dr. D. W. Cheever *(Boston Medical and Surgical Journal*, April 6, 1899, p. 330) records the case of a child of two and a half years who had swallowed a square piece of tinned iron. It was located by the *x*-rays, and was seen to be opposite the second and third ribs; it had been in the esophagus for three weeks. The child swallowed fairly well and played about. The wound was closed in seventeen days.

Dr. A. Post *(Boston Medical and Surgical Journal*, April 6, 1899) reports an esophagotomy in a child aged twelve for a 25-cent piece. It had been swallowed five days before. Immediately after the operation, through some mistake, bread and milk was given, and by the next day the child was running all round the room. There was complete recovery.

Dr. E. Harrington *(Boston Medical and Surgical Journal*, April 6, 1899) reports two cases. The first was a child of one and a half years, and through an opening in the trachea the foreign body was seen by means of the fluoroscope and easily removed. The second, a girl of sixteen months, rather delicate and frail, had swallowed five weeks before a metallic button, about the size of a five-cent piece, with a pin attached. The *x*-rays showed the pin just below the upper end of the sternum, and the probang was used in an effort to extract it without success. Esophagotomy was done, and it was seen that the pin had been driven through the posterior wall of the esophagus, probably by the passage of the probang. The child died in six days, and the autopsy showed considerable laceration of the esophagus with bilateral otitis media and general anemia.

This would show the great danger in

using the probang, for it did not detect the foreign body, but pushed the pin through the walls of the esophagus. I can thoroughly indorse his conclusions, in which he states that his feeling in regard to the removal of foreign bodies in the esophagus is that early operation is safer and wiser than the use of esophageal instruments except to determine the location. Much damage can be done to the larynx and esophagus by the use of long forceps and coin-catchers.

Dr. J. W. Elliot *(Boston Medical and Surgical Journal,* April 6, 1899) shows the great danger also in the use of a coin-catcher in his report of a case of a boy of three who had swallowed a five-cent piece four days before. There was continuous regurgitation of mucus and anorexia following the numerous attempts to remove it. The skiagraph showed the coin clearly just above and partly behind the sternum. A coin-catcher was used in an attempt to remove it, but the catcher caught behind the larynx, and it was only removed from the esophagus with the greatest difficulty and danger to the child. Esophagotomy was done, and the child made a prompt recovery. Dr. Elliot also mentions another case of a boy of eight who swallowed a tin whistle. He was seen within a few hours, and the *x*-rays showed the whistle to be just above the sternal notch. After he was etherized it could not be detected with a probang, and this led to a second examination with a fluoroscope, which showed the whistle to be in the stomach, having slipped down during the etherization. Examinations were made by the fluoroscope every ten days, and the whistle could be distinctly seen at first, but became more indistinct in four or five days, and finally could not be seen at all. The child was kept in hospital for two months, and there were no symptoms whatever, nor was the whistle ever passed by the bowel. He therefore supposes that it must have been dissolved in the gastric juices.

It will therefore be seen that the danger of an attempt at removal of a foreign body from the esophagus by forceps and probang is very real, especially if it has been in position for any length of time, and this danger is materially increased if it be irregular in outline and particularly if it has sharp projections. In children the esophagus is so small and the tissues so delicate and easily lacerated that only the greatest gentleness should be exercised in these manipulations for fear of doing irreparable damage. I am firmly of the belief that no attempt should be made to remove it by the mouth except the foreign body be perfectly smooth and in position no longer than twenty-four or possibly forty-eight hours.

On the other hand, esophagotomy is not a difficult operation to perform even in the youngest children; the foreign body can be removed with the least amount of damage to the delicate tissues, the shock of the operation and loss of blood is very slight, and the chances of complete recovery are excellent.

These cases show the great value of, and indeed the necessity for, a proper skiagraph being made in all cases of probable foreign body in the esophagus. To accomplish this satisfactorily, an anesthetic should be given to keep the child perfectly quiet, and with modern methods a very short exposure to the tube is sufficient. In my own case an attempt had previously been made, when the child had only just swallowed the metal clasp, six months before I operated, to examine with the fluoroscope and also to take a skiagraph, without, however, giving an anesthetic. Nothing could be seen with the fluoroscope, and the skiagraph was simply a blurred outline, but it was concluded that no foreign body was present.

While it may be possible to locate it with the fluoroscope, a skiagraph should always be taken and a print of it made. This will enable the location to be much more accurate, and if need be measurements may be taken from the different bony prominences.

The interpretation of the skiagraph requires an expert, as there are many possible sources of error, which may occur at the time the skiagraph is taken, in its development and its subsequent reading. Then, too, the various materials of which the foreign body is composed give very different results, and while the expert may by a short exposure and using a tube of low penetration give the different qualities of the various tissues of the body, celluloid, vegetable ivory, wood, and various other objects—all of which have been swallowed at various times—may give no impression upon the picture. We must, therefore, be very guarded against coming to an erroneous conclusion, and realize that if the foreign body is demonstrated by this means it is absolutely conclusive, while the mere fact that nothing is shown in the skiagraph does not necessarily mean that no foreign body

is present. Of course, in all instances the history of the case and the fact that the body was swallowed must be given due weight. To illustrate a possible source of error I mention this case of Dr. Harrington *(Boston Medical and Surgical Journal,* April 6, 1899): A child of two years had an obstruction in the trachea. It had existed for four weeks, and nothing whatever could be discovered by the *x*-rays. His symptoms were those of a loose body playing up and down in the trachea and causing paroxysmal cough. At the operation a watermelon seed was removed.

The symptoms usually spoken of are pain, dysphagia, regurgitation—and this regurgitation of all fluids is a very important symptom—bloody mucus, emaciation, and in some cases impairment of voice.

Dr. J. C. Warren thinks that the place where foreign bodies are most often caught is between the box of the larynx in front and the vertebral column behind, and that the foreign bodies can be pushed down into the stomach very frequently by the ordinary probang; and Dr. Cheever states that in his experience, once past the vocal organs, foreign bodies will stay in the trachea with less immediate danger than in the esophagus.

Fischer *(Deutsche Zeitsch. f. Chir.,* Bd. 29; *Annals of Surgery,* October, 1889, p. 288) reports 108 esophagotomies at all ages, and mentions one case of an impacted foreign body that it was impossible to dislodge even after opening the esophagus. It later passed on into the stomach and through the intestines, with subsequent recovery of the patient.

From my own experiences with this one case I should say that an attempt should always be made to suture the esophagus with catgut, because even if we do not get primary union of the wound we certainly diminish its length. The external wound should be packed with gauze, there being no objection to using one or two sutures at either end to diminish its length, and the dressing should be changed very frequently. Boric acid is the strongest antiseptic which should be used about the wound for fear of doing damage.

In conclusion, let me say that I have not attempted to collect all of the reported cases of esophagotomy in children that have appeared in medical literature, but only such numbers as would show the general results in this class of cases, without any attempt at selection, and simply as they were found in my reading. Nor have I gone into the question of the advisability of gastrotomy for foreign bodies when shown to be low down in the esophagus, contenting myself on the subject by quoting at length Dr. J. William White's case. I feel, however, that the question of short and fat neck should not be a special factor in determining our selection of method of reaching the foreign body, but that its position as located by the skiagraph should be our guide.

THE NARCOTIC DRUG HABITS AND THEIR TREATMENT.

By George E. Pettey, M.D.,
Memphis, Tennessee.

Very little if any improvement has been made in the treatment of these addictions in a great many years. The teachings of Burkhart have to a great extent molded professional opinion on this subject, especially in America, and his gradual reduction method has the indorsement of most medical writers. Any one who will investigate the subject will be driven to the conclusion that this indorsement is given on theoretical grounds entirely, and not because of the success attending it. The tapering-off method appeals to the preconceived notions of both the physician and his patient, but of the many thousands who have tried this deceptive process very few have succeeded. I have talked with many physicians on this subject and find but few who can recall a single case cured by this kind of treatment. In an experience of more than twenty years I know personally of only one person treated by this method who remained free from the habit.

The long-drawn-out and almost intolerable suffering experienced during this course of treatment so exhausts the nerve force and will-power of the victim that by the time he is off of the drug he has no ability left to resist the slightest pain, and cannot maintain himself after being discharged from treatment. The mental impressions made during this siege of suffering are ineffacable, and the long-cherished desire for the drug is gratified at the first opportunity. Such experience as this has led most physicians to look upon these wretched sufferers as wantonly abandoned to their habit and incurable. This opinion is not well founded. If these people are

given a reasonable chance their original mental and moral traits will assert themselves and be found very slightly, if at all, impaired.

In sharp contrast with the gradual reduction method of Burkhart is the method of Levinstein. This is a sudden withdrawal of the drug, without previous preparatory treatment; the vital functions being supported by alcohol and other such stimulants, with a final resort to morphine if the symptoms become too alarming. This they generally do.

The third method is the rapid reduction or "quick mode" of Erlenmeyer. In this, without preparatory treatment, the allowance of the drug is reduced on the first day to about one-third the usual quantity, and on each succeeding day the dosage is reduced until zero is reached by the fifth to the tenth day.

Under all these methods of treatment the obstacles encountered have been almost, if not altogether, insurmountable. This will be apparent from the following quotations from standard authors:

"Opium habitués, differing as they do among themselves in the manifestations of the drug as long as it is freely taken, all alike develop characteristic symptoms upon its speedy or gradual withdrawal. . . . The nervous system, whether it has been accustomed for months only or for years to the influence of opiates, is upon their withdrawal forthwith thrown into derangements of the most serious and wide-spread kind. In the course of a few hours after the last dose the steadying influence of the drug disappears. General malaise is associated with progressive restlessness, the ability to perform the ordinary duties of life gives way to profound indifference; precordial distress, accompanied by cough, is followed by insomnia, hallucinations, and sometimes mania. The habitual pallor of the face is replaced by a deep flush or cyanosis. The heart's action becomes excited or irregular, then feeble; the pulse, at first tense, becomes slow, thready, and irregular. Colliquative sweats appear. Attacks of yawning and sneezing are followed by convulsive twitching of the hands. Speech becomes hesitating, drawling, and stuttering. These phenomena are associated with a sense of perfect prostration, which obliges the patient to take to his bed. Pain in the back and limbs followed by neuralgias occur. Complete anorexia, with easily provoked or even causeless vomiting and persistent nausea, and diarrhea difficult to control, add to the gravity of the condition. . . .

"During the early days of abstinence the evidences of cardiac failure are marked. Enfeeblement of the first sound, irregularity of the heart's action, and intermissions are common. . . . Restlessness is continuous and very often intense, and patients are with difficulty kept in bed; if left to themselves they move frantically about the room, moaning, bewailing their condition, and begging the attendant for that which alone is capable of relieving their distress. This condition gradually subsides, giving way to one of profound exhaustion. . . . The exhaustion, due to the reaction of the nervous system deprived of the stimulus of the drug, is on the one hand favored by preexisting derangements of the nutritive process, and on the other increased by the pain, wakefulness, diarrhea, and vomiting which accompany it. The appearance of the patient is now most pitiable: the countenance is blanched and pinched, the body occasionally drenched with sweat, the heart's action feeble, and the pulse thready and irregular." (Pepper's System of Medicine, pages 657-8-9.)

Of gradual reduction, Erlenmeyer says: "No benefit is derived by the patient from this method. . . . I have had ten years' experience with it in our institution, only to be more and more convinced of its worthlessness. . . . The patient after withdrawal is left in such a condition of physical weakness and mental dilapidation as to be the victim of intolerable suffering and unfit for enjoyment or application to work. He cannot sleep, he has no appetite, often vomits, and feels too much used up to rise from bed. This condition continues for a long time and grows worse from week to week. Various attempts at cure prove useless. Morphine is the only remedy."

Of the sudden withdrawal method Erlenmeyer says: "The physician-in-chief or his subordinate must be with the patient night and day for the first few days of treatment, when the struggle will be the greatest. There will be a collapse of the vital forces, and it may be a matter of life and death for the patient, and in this hour of danger, ripe experience, presence of mind, and readiness in emergencies are necessary in the physician and attendants. They must pitilessly resist the importunities of the patient for morphine, while at the same time they

must not lose their compassion and sympathy for the poor sufferer. There will be numerous symptoms constantly occurring, such as vomiting, diarrhea, restlessness, etc., which will demand attention and keep the medical attendant and nurse busy; there will for a time, in fact, be no rest for anybody. The responsibility of keeping the patient from inflicting injury on himself is no light strain on the nerves of the physician, who must exercise untiring vigilance, and no one can endure this strain more than twelve hours without respite and rest."

"The sudden withdrawal entails horrible suffering and is utterly inexcusable" (Murrell's Therapeutics).

"The apartments occupied by the patient should be so arranged as to guard against attempts at suicide" (Pepper's System of Medicine, p. 672).

This is the state of the literature of this subject to-day. With these discouraging statements by the authorities, and with such an array of complications to meet, no wonder few physicians can be found who will undertake the treatment of one of these unfortunates.

This has left these millions of sufferers helpless prey in the hands of unscrupulous sharks.

It is with a firm belief that I have something better, something that is worthy of attention, and that will bring the long-hoped-for relief to these most helpless and wretched of the earth's inhabitants, that I offer this paper.

For convenience of reference I will here enumerate the most important symptoms which develop upon the withdrawal of morphine. They are intestinal colic, nausea, vomiting, diarrhea (frequently uncontrollable); rapid, labored, irregular, or inefficient heart action; collapse, sometimes proving fatal; extreme prostration; cold, clammy sweats, accompanied by rigors and involuntary muscular contractions. Hysteria of the most marked type is present, with coryza, aching of the back, limbs, and joints, extreme restlessness, persistent insomnia, and general hyperesthesia of the peripheral nerves. Burning sensations in the skin, especially in the back and feet, are present, and anorexia, with maniacal delirium.

These complications terminate in one of three ways—death, return to the habit, or protracted convalescence.

All my predecessors who have recorded their work have treated these complications symptomatically, treating or regarding them as an entity, due to the withdrawal of the drug, and unavoidable. This position is fatally erroneous. Rational therapeutics demands that their real cause be ascertained and removed and thus thwart their development.

During the last two years I have treated many cases of these addictions, and in view of the unsatisfactory results obtained by all the heretofore recorded methods of treatment, I have disregarded them altogether, and by clinical study of each complicating symptom have endeavored to ascertain its cause and manner of development, and then to treat it by the rules of common sense and the general principles of medicine.

In the literature of this subject no mention is made of what I have found to be the chief essential in the successful treatment of these cases, namely, elimination, both of the drug and of the effete material with which these patients are surcharged.

At least six of the most troublesome and dangerous complicating symptoms have their origin in a perverted function, viz., deficient excretion. These are intestinal colic, nausea, vomiting, diarrhea, labored and deficient heart action, and collapse. By thorough elimination these may be prevented altogether, and a number of the other symptoms of nervous and mental origin greatly modified if not entirely avoided.

Morphine checks secretion and diminishes excretion, and persons using it lead rather a quiet, sedate life. Peristaltic action is habitually deficient, and while the bowels may act daily or oftener, the waste is never properly excreted. At intervals, varying with different individuals, the system makes an effort to more perfectly free itself from this offending material by a diarrhea, or probably by both diarrhea and vomiting. While this free activity on the part of the eliminators may be tolerated for a short time, it is sooner or later allayed by an increased quantity of the soothing drug. Thus they go, from day to day and from year to year, with the entire system surcharged with effete material. Not only is the colon overfilled, but the small intestines, by the benumbing influence of this drug, are forced to tolerate the presence of a large quantity of excrementitious matter. Upon the withdrawal of morphine the sympathetic nervous system wakes up to the presence of this offensive matter and begins an active effort to throw it off. This is always accompanied by colic, nausea,

and vomiting, due to the presence of this offensive matter in the upper part of the alimentary canal, to its agitation in the effort being made to throw it off, and to the inability of the canal to promptly and efficiently empty itself.

This condition is soon succeeded by a diarrhea that is both excessive and exhausting—a choleraic diarrhea. Hyperemia of the entire intestinal canal results, the portal system is engorged and congested, thus impeding the flow of blood. This greatly taxes the heart at a time when it is deprived of its accustomed support. Under these circumstances the pulse becomes thready, irregular, rapid, or abnormally slow and weak. The skin is bathed in cold, clammy sweat; in fact, a state of collapse is present which all authors agree may prove rapidly fatal.

While morphine markedly retards secretion and excretion in one not habituated to its use, after a time in drug users these functions are performed at least at a living rate. The excretory force that is most impaired is peristaltic action. This is always greatly retarded and much of the time completely suspended—in fact, it might be said that a partial paralysis of peristaltic action exists. In emptying the bowels free peristaltic action is essential. If free peristaltic action is excited while the system is still under the sedative influence of morphine, little if any distress occurs, and the alimentary canal can be thus thoroughly and pleasantly emptied.

Fortunately there is one drug in the materia medica which has more power to stimulate than morphine has to retard peristaltic action. That drug is strychnine, but in its administration the dosage must be commensurate with the condition to be met. Ordinary medical doses are not sufficient. It must be remembered that the system is under the benumbing influence of a powerful drug that opposes strychnine in most if not all of its range of action. In order to establish its effects on the system, not only a sufficient quantity to produce that effect on a normal person must be given, but an additional quantity sufficient to overcome the semiparalyzed condition of the sympathetic nervous system and excite free peristaltic action. This quantity will vary greatly in different individuals, depending upon the age, physique, and temperament of the patient, as well as upon the quantity of morphine used. I have usually found 1/24 to 1/8 of a grain, given at intervals of two hours until four such doses were given, sufficient.

Another drug that is useful in these cases, for which there is increased tolerance, is ipecac. Their tolerance for ipecac is about four times as great as in a normal person. The quantity of other evacuants, as calomel, cascara, etc., need not be increased if given in connection with strychnine. Their stimulating action on the glandular apparatus seems to be about as great as on the normal person, but they are not capable of exciting peristaltic motion to a sufficient extent to promptly empty the intestinal canal. Unless the clogged condition of the canal is promptly overcome great distress follows the administration of a purgative in these cases.

The combination that I have found to act most pleasantly and efficiently in these cases is the following:

> Calomel, 10 grains;
> Powdered extract of cascara, 10 grains;
> Powdered ipecac, 2 grains;
> Strychnine sulphate, 1/6 to 1/2 grain.
>
> Mix. Make four capsules. Sig.: One every two hours until all are given, preferably at 4, 6, 8, and 10 P.M.

These should be taken on an empty stomach, and the stomach kept empty until the purgation is completed.

During the time these capsules are being given a sufficient quantity of the drug that is being used should be administered to keep the patient in a comfortable condition for twelve hours, and as a rule this should be the last of his drug used.

The strychnine in these capsules will in the course of six or eight hours so stimulate peristaltic action that the entire contents of the intestines will be propelled into the colon and much of it evacuated purely as a result of increased peristalsis, but to insure that nothing be left in the bowel a bottle of citrate of magnesia should be given eight hours after the last capsule and repeated at intervals of two hours until the entire digestive tract is empty. In this combination the relaxing effect of the ipecac, together with the increased secretion from mucous surfaces caused by it, is supplemented by stimulation of the eliminating glands by the mercury and cascara, together with the accelerated intestinal motion from the strychnine. This alone would fairly well empty the bowel, but there is still work for the saline cathartic. Its depleting, flooding ac-

tion carries, into and out of the alimentary canal, a still further residue of effete material and of the drug against which the fight is being made. The quantity of effete material voided under this course, and the ease and freedom from suffering with which it is accomplished, is marvelous.

During the time this evacuating course is acting a hot bath should be given, preferably a vapor bath, followed by a thorough scrubbing of the surface of the body with soap and hot water. Then you have your patient clean inside and out, and will have avoided at least six of the most distressing and dangerous symptoms met upon the withdrawal of morphine.

If the patient is now put to bed the heart has little to do but to roll the blood along on a level, and if that organ is at all sound it will do this without difficulty, notwithstanding the withdrawal of the artificial stimulant under which it has been working. Unloading of the intestinal canal and relieving portal congestion lessen the strain under which the heart has been working more than enough to compensate for the loss of the stimulus it derived from the effects of morphine, and instead of the heart's action being weak or irregular, the character of the pulse is decidedly improved, it has greater volume, is softer, more compressible, and in every respect of better quality than when propelling the blood against the obstruction of an engorged portal system even though it was supported by morphine. However, should the heart be weak or for any reason need support, sparteine sulphate, one to two grains hypodermically every four to twelve hours, will give it more uniform and efficient support than morphine or any other known drug.

With elimination thoroughly accomplished and the heart's action supported by sparteine, the supply of morphine may be at once stopped, no matter how large a quantity the patient has been using, without danger to life, and without colic, diarrhea, vomiting, or the slightest appearance of collapse; but many, if not all, of the nervous and mental symptoms above enumerated will develop and continue for from twenty-four to seventy-two hours. The patient would suffer intensely during that time, and this suffering would seriously impair his nervous system, weaken him physically, and lessen his powers of resistance, but the dangers to life so prominent under withdrawal without elimination would be avoided.

Most of the other symptoms are of nervous and mental origin and are due to the secondary effects of morphine and not to abstinence from it. They are simply allowed to develop by its withdrawal and not caused by it. It is true that the administration of another potion of the drug would allay them and delay their development for from eight to twenty-four hours, but as soon as the primary effects of the drug subside and the secondary effects develop, these symptoms would again make their appearance, not at all mitigated by this postponement. I have taken much pains to determine the cause of these symptoms, and have been led to the conclusion that they are, in the strictest sense, a product of the drug and not, properly considered, due to the lack of it. In other words, the anesthesia caused by the primary effects of morphine, when taken by a habitué, is succeeded by a hyperesthesia equally marked and of greater duration. This hyperesthesia has a natural limit, and terminates when the effects of the drug on the system have become exhausted. This limit certainly does not depend upon any change that takes place in the tissues or cells of the body, but purely upon the fact that the drug has exhausted its effects. I cannot conceive of a uniform and short limit to these painful symptoms if they were due to any change in the structures, nerves, or cells of the body. If the patient is left to "suffer it out," certainly no such marked improvement could take place in these structures as to account for the sudden and complete cessation of these painful symptoms in so short a time as three days or less.

With proper treatment these painful symptoms can also be avoided, and that treatment need not exceed twenty-four to forty-eight hours after elimination has been completed. At the end of that time all medication may be discontinued and the patient thereafter remain in a state of comfort, and free from all craving for the drug. Not only that, but the sleeplessness, anorexia, and nervousness that has heretofore been so prominent during convalescence are also avoided and the patient enabled to sleep from five to eight hours out of each twenty-four, eat three full meals a day and want more, spend his time in comfort, and instead of requiring from six to twelve months for convalescence he will find himself in vigorous health in from thirty to sixty days.

The remedy that will effectually meet this

condition, after the patient is prepared for it, is hyoscine hydrobromate. It may be contended that this is substituting one narcotic for another; this is true in name only, but no farther. The therapeutic use of hyoscine, for the time it is required in these cases, does not in any way perpetuate the desire or necessity for the use of morphine. While it relieves pain, induces sleep, and overcomes all those distressing symptoms of nervous origin that follow the withdrawal of morphine, it evidently does so by acting upon different nerve centers from those affected by opiates, and at the same time stimulates those centers that have been benumbed by morphine, thus materially shortening the time during which the secondary effects of this drug would be manifested.

The administration of hyoscine should be begun at the completion of the eliminating course above referred to, or as soon thereafter as abstinence symptoms begin to manifest themselves. The dose of hyoscine varies greatly with different individuals, the range being from 1-200 to 1-50 of a grain at intervals of from thirty minutes to six hours. At first the smaller doses should be given and repeated at short intervals until sleep is induced, or at least until the patient is free from all pain. After this the doses should be of such size and given at such intervals as are necessary to overcome all painful symptoms and keep the patient entirely comfortable.

The administration of this agent should not be left to a nurse, but the physician should remain with the patient in person. The dosage given in one case is no index to what will be required in the next. Only by the physician being present and personally observing the effects of each dose can the proper dosage be ascertained and the patient kept in a comfortable condition.

To recapitulate: There are four things essential in the successful management of these cases. They are, first, thorough elimination; secondly, support of the vital functions; thirdly, relief of suffering; fourthly, entire control of the patient and his surroundings.

Enough has been said as to the first two of these, but as to the third and fourth a few more words are needed.

The patient should not be allowed to suffer. Hyoscine does not materially affect the vital functions or leave after-effects on either the mind or body of the patient, therefore it should be given until its full physiological effects are manifested if necessary. To allow the patient to suffer during the treatment impairs his nervous system, lengthens the time during which treatment will be necessary, and materially increases the danger of relapse.

Patients should be kept steadily impressed with hyoscine for twenty-four hours from the time abstinence symptoms begin to make their appearance; then its effects should be allowed to subside. If at the end of this time there should be a desire for morphine or the patient be at all uncomfortable from abstinence symptoms, a full dose of hyoscine should be given, and after its effects have subsided it should be repeated, if necessary, until the patient expresses himself free from all desire for morphine and abstinence symptoms do not return. If the eliminating course has been thoroughly carried out it will very rarely be found necessary to continue the administration of hyoscine more than twenty-four to thirty-six hours. At the end of this time the patient will remain free from pain and nervousness, will sleep from five to eight hours out of each twenty-four, have no craving for morphine, and in a few days have an appetite that is hard to satisfy.

The period of convalescence during which the patient must be kept under supervision is also considerably reduced, but varies greatly with different individuals. The absence of that train of nervous symptoms, the ability to sleep naturally, to eat heartily, and the improved digestion and assimilation, by which the patient rapidly gains in flesh and strength, lessens the liability to relapse almost as greatly as this curative plan of treatment lessens the dangers and suffering while under treatment.

No after-treatment is necessary or should be given except in very unusual conditions. The patient should be thrown on his own resources as quickly and as fully as possible. If the heart is not sound it should be supported with sparteine until it becomes accustomed to the changed conditions. There is certainly no place in the after-treatment of these cases for either alcoholic stimulants or strychnine, which have been so much used heretofore. The first raises the vital forces above the normal, only to allow them to fall as much below, in a very short time. The waning of stimulation is a condition that is intolerable to these patients. The use of alcohol calls for other stimulants and greatly militates against final success. All stimulants should be interdicted. Strychnine

keeps up too active peristaltic action and inclines the bowels to empty themselves too often. This interferes with digestion and assimilation and causes diarrhea by the passage of incompletely digested food through the bowels. In my earlier cases, fearing the collapse which the authors so much emphasize, I used strychnine and sparteine in combination with hyoscine in every case. I do not now use strychnine, except as an evacuant in the beginning of the treatment, neither do I combine the other two remedies, but use them separately as indicated. In many cases I find no use whatever for sparteine, as the heart's action is perfect without it, but in others it is invaluable.

In some cases I have administered iodide of potassium for a number of days before beginning more active treatment, with a view to stimulating the glandular system. I think this will prove helpful, but I have not yet used it in a sufficient number of cases to justify an opinion.

During the period of treatment, and for ten days or two weeks thereafter, until considerable self-reliance has been acquired, the patient should be separated from his family and from all other persons to whom he looks for sympathy. Sympathy and over-attention tend to the development of hysterical symptoms that are troublesome, and retard the acquirement of that self-reliance that is so essential in these cases. The presence of the physician under whose care the habit was formed, or who has attended the patient during any effort at treatment that has ended in failure, also exerts a very unwholesome influence on the patient.

Patients of this class have a fixed habit of dependence upon some extraneous influence —their drug, the sympathy of relatives, etc. —and have largely lost their individuality; therefore a course of treatment to give the best results must be disciplinary as well as therapeutical. It should not be undertaken at the home of the patient, because the physician cannot have such control of the patient and his surroundings as is essential to success. This control must be complete during the early part of convalescence as well as during treatment. During this time the physician must stand between the patient and all temptation, and must know, beyond peradventure, that he has no access to his drug or any substitute for it.

Under this plan of treatment the therapeutical measures necessary are soon completed, but the end sought is not merely to take the patient off of his drug and place him where his physical condition will not require its use, but in addition to so fortify him mentally and morally that he will not return to the use of the drug from sheer force of habit or otherwise.

The psychological element is an important one and should have intelligent consideration and skilful management. The fixed habit of dependence upon a drug is to be supplanted by a counter habit of independence or self-reliance, and both time and discipline are essential factors in this process. This is one of the chief reasons why no tonic or after-treatment should be given. So long as the patient takes anything his mind clings tenaciously to the idea that his well-being depends upon his receiving some support, some outside assistance, and is thus led away from rather than toward self-dependence. No patient of this class under any treatment is secure from relapse if discharged taking plain water if he thinks it is medicine. A protracted course of treatment tends to perpetuate a habit of invalidism and defeats the very objects sought in treatment. The patient must be taught to rely entirely on his own resources and fully convinced of his ability to do so; he must not only be cured of the habit, but thoroughly fortified against relapse. This can certainly be done, but the time required will vary with different individuals. Some will more completely regain their mental and moral equilibrium in a week than others will in a month, but until this has been fully attained the patient should not be discharged.

Association with other convalescent patients, the comradeship thus established, and the encouragement a patient receives from witnessing the successful recovery of others, will be found helpful in establishing the patient in his new position. Nothing less than the complete and permanent emancipation of every patient treated should satisfy us.

Under this plan of treatment and management I feel confident that the great majority of drug users can be permanently reclaimed and fitted for useful stations in life. In this class I would place all those who formed the habit as the result of a painful accident or protracted illness—which has either terminated or is curable—who have moral convictions and a real desire to be free from the habit. In the other class I would place those who formed the habit voluntarily and who use the drug as a dissipation,

who are lacking in morals, without hope or aspirations, and who have no real desire to be free from the habit. While these can be cured as readily as the better class, efforts made in their behalf will be disappointing. No matter how excellent their physical condition may be as a result of the treatment, they will return to the use of the drug, purely as a dissipation; therefore they should not be accepted for treatment when the facts can be ascertained beforehand, neither should their failures be allowed to weaken our faith in the permanent curability of the more numerous and better class of patients. It should be borne in mind that the use of opiates does not cause structural change in the brain or other tissues of the body, but that the derangements due to their use are purely functional and therefore certainly and permanently curable.

The principles contended for in this paper can be applied with equal success to the treatment of the cocaine, tobacco, and liquor habits, but their consideration is reserved for a future paper.

TWO CASES OF BORIC ACID POISONING.

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The literature upon the subject of the physiological effects of boric acid and its salts is not very extensive. H. C. Wood says that they have a very feeble effect upon the animal system. His experiments show that enormous doses depressed the spinal centers of the frog and produced progressive loss of voluntary and reflex activity, without affecting nerve or muscle. He speaks of two cases of fatal poisoning reported by Mododewkow *(St. Louis Clin. Rec.,* September, 1881), in one of which the symptoms followed washing out a lumbar abscess, and in the other a pleuritic cavity, much of the solution remaining in each instance. The symptoms were nausea, incessant vomiting, hiccough, erythematous eruption, fall of temperature, and collapse, the mind remaining clear.

In a not fatal case of poisoning *(Medical News,* xl, 704) the symptoms were erythema, with rapid, feeble pulse. Two cases are also cited as reported by Dr. R. Hogner, in which washing out the dilated stomach with a two and one-half per cent solution of boric acid was followed in each instance by erythematous eruption, headache, great general distress and weakness, disturbance of respiration, involuntary discharges, ecchymoses on the skin, and death.

Wood gives the dose as ten grains three to six times a day.

Shoemaker has very little to say of the internal administration of boric acid, and gives the dose as being five to thirty grains.

Foster recommends the administration of ten grains three to six times a day in cases of ammoniacal decomposition of the urine with cystitis. He also warns against the use of it as a preservative of foods, saying that "possibly the addition of four or five grains to the quart of milk is allowable in cases where there may be a difficulty of obtaining a fresh supply, but it should be avoided unless absolutely necessary."

Feré *(La Semaine Médicale,* 1894, No. 62, p. 497), having given borax a six years' trial in all doses in epilepsy, pronounces it inferior to bromide of potassium, and speaks of a set of symptoms which he calls "borism." Occasionally the stomach was intolerant of the drug, but more often there were loss of appetite, sensations of heat at the epigastrium, and vomiting. Skin eruptions occurred, and later cachexia, with separate swellings of the eyelids, face, or extremities, accompanied by albuminuria. The cessation of the drug, "owing probably to its tardy elimination, by no means always arrests the kidney trouble, as in one case of the author's which went on to uremic coma and death."

Edward Curtis, in the Reference Handbook of the Medical Sciences, says that boric acid may be given in thirty-grain doses, often repeated, in dyspepsia with fermentation of the ingesta.

Chittenden and Gies *(American Journal of Physiology,* January, 1898) say that doses of borax up to five grammes a day are without effect either upon the general nutritional changes of the body or upon proteid metabolism, larger doses, five to ten grammes daily, leading, if long-continued, to increased excretion of nitrogen through the urine. They say that both borax and boric acid are quickly eliminated from the body, twenty-four to thirty-six hours being sufficient for their complete removal. They also claim that while these two drugs are apt to produce nausea when given in quantities amounting to one and a half to two per cent of the food, no harm can come from their

daily ingestion in moderate quantities, owing to their rapid elimination.

The writer feels compelled to differ in his opinion from the last quoted gentlemen, both as to the quantity which may be taken and also as to the time required for their elimination from the system.

The practice of giving boric acid in posterior urethral and bladder inflammations originated with Dr. E. R. Palmer, late professor of physiology in the University of Louisville, and became quite common in the South and West as a result of his teaching. A great many times I have used it in such cases, with the result of having the pus in the urine disappear almost immediately upon beginning its administration. I myself, as I am quite sure a great many other physicians also, grew to regard the remedy as perfectly harmless in almost any dose, and the teachings of the ordinarily used text-books, recommending it as they do in ten-grain doses three to six times a day, did not serve to put us on our guard. Indeed, it was with some difficulty that I arrived at a diagnosis in each of the two cases to be given.

CASE I.—S. C. C., aged thirty-eight, had been suffering from a posterior urethritis following an ordinary case of gonorrhea. As was my ordinary practice in such cases, I began the internal administration of boric acid in five-grain doses every four hours, washed out the bladder with a saturated solution of the same drug, and instilled nitrate of silver into the posterior urethra in increasing-strength solutions.

After two or three days he complained of a feeling of extreme weakness, and there appeared an eruption upon the backs of the hands and between his fingers, consisting of a few large papules, similar in character to hives, and of vesicles a little larger than a pin-head, and in great numbers, distributed between the larger papules. His pulse was not increased in frequency, but was very weak.

The symptoms passed off very slowly upon the cessation of the drug, and were reproduced by a readministration of the remedy. I am quite sure the case would have been fatal if the use of the drug had been continued.

CASE II.—J. S. C., aged fifty. This was a patient of mine who had had a stone about an inch and a quarter in diameter removed from his bladder by Dr. A. M. Vance, of Louisville, Ky., by the suprapubic route, and of whom I had the after-treatment. The administration of boric acid, five grains every four hours, had been begun by Dr. Vance before the operation, and was continued by me under his direction afterwards. The bladder was also washed daily with a saturated solution of the same.

Some ten days after the operation there appeared an erythematous rash around the cut above the pubes, which was attributed by me to the urine which escaped through the wound. The eruption spread, however, until it covered the abdomen, appearing later upon the calves of the legs, the face, the backs of the hands, and later still upon almost the entire surface of the body. This eruption was erythematous at first, being later covered with scales and crusts, the skin being thickened and infiltrated as in eczema.

The boric acid was discontinued, and the eruption very slowly disappeared, as did also the presence of albumin in the urine which came with the appearance of the rash. To satisfy me and himself as to the causation of the eruption, the patient resumed the drug after the eruption had entirely faded, and its resumption was followed in two days by a reappearance of the rash. This return of the skin eruption so quickly upon the resumption of the drug demonstrates, I think, that the elimination was very slow. The first time the rash only came after the drug had been given for two weeks or more; the second time it came after two days' use of the medicine. This would seem to indicate that even though the eruption had faded the system was still impregnated by the drug. Hence the ease with which the eruption was reproduced.

In this case, besides the rash and albuminuria, were noted also marked depression, as indicated by extreme weakness, nausea, feeble pulse, and coincident with the albuminuria and height of the eruption a rise of one or two degrees of temperature.

From these two cases the writer would agree with H. C. Wood as to the physiological effects of boric acid, but would caution his readers against the reckless administration of the drug. It would seem that sixty grains is rather more than should be given in twenty-four hours. The slowness of its elimination would also seem proven, as in neither of these cases did the symptoms subside until several days after the drug had been discontinued.

Any use of boric acid as a preservative of

foods should be prohibited by law, as the poisonous effects of any quantity sufficient to preserve food would appear to be proven.

THE TREATMENT OF PROSTATIC HYPERTROPHY BY DILATATION.

By John A. Ciminger, M.D.,
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Enlarged prostate has ever been a difficult condition to understand and treat. We have reasoned and practiced blindly; we have been disposed to attribute all urinary ills accompanying enlarged glands to this cause. I am disposed to question the correctness of this decision. About 1886 I gave the subject most careful consideration, and came to the conclusion that the difficulty in great measure exists with the bladder forces; I found that the expulsive and resisting forces were not acting in official harmony. The expulsive force was weak, worn, and strained, and the resisting force remained practically unchanged. On this view I acted, and was convinced that one of two propositions must be carried out, viz., the expulsive force must be raised or the resisting force lowered. Already I had tried to effect the first, but failed, and concluded it was impracticable. This led me to consider the propriety of attempting to lower the resisting force. Opportunity soon offered. A man of seventy years presented himself for treatment, and I made the experiment. I soon discovered that his case was a desperate one, as urine had not passed in the natural way for a period of twenty years. For this entire time he had used the catheter day and night, and was a great sufferer. He was ready and willing to submit to any operation I desired to make. I introduced a urethral dilator and slowly but thoroughly stretched the neck of the bladder, and then cleansed the bladder with boric solution. While doing this I made the attempt to slowly but forcibly fill the cavity for the purpose of enlarging it, but in this I failed, perhaps on account of organic changes of long standing. Anyway, the relief that followed, in existing conditions, was quite decisive. He did not suffer nearly so much, nor did he have to use the catheter so often. He lingered in this uncertain condition about two years, and died of uremia.

I will briefly describe another case. This was a man of sixty who was just beginning the history of prostatic trouble, having already had several retentions which called for the catheter. His health in a general way was good. I explained the operation and probable benefits he might expect from it. I introduced the steel sound and carefully stretched the neck, and repeated the operation twice a week for several weeks. It was a complete success, both patient and operator being well satisfied. It has now been three years since the operation, and the patient has experienced little trouble in that direction. True, now and then, on account of sudden change in weather or indiscreet living, there have been threatenings, but favorable weather and correction of habits will bring him around all right.

I could cite several other cases of interest, but the two express the extremes of the disease, and represent the principle on which treatment is founded. I do not believe that more cases and more expounding would make the subject any clearer.

A point worthy of careful survey is made by some specialists in this department of surgery. They claim that instrumental pressure favors absorption of enlarged glands; if the pressure can be continued and not do violence to environments, it surely would exert a salutary influence. If this be true the method is of greater utility than I have ventured to claim for it; and if both purposes can be carried out in the treatment, we have good reason to expect good results.

SUPRARENAL EXTRACT AND ADRENALIN IN INTERNAL MEDICINE.

By A. L. Benedict, M.D.,
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Quite early in the use of suprarenal extract it occurred to me, as it doubtless did to many others, that a principle which would contract arterioles must be of considerable therapeutic value, entirely aside from the control of hemorrhage or the blanching of inflamed mucous membrane. In any line of internal medicine one quite often encounters cases that might, by analogy to the surgical condition, be called chronic shock—that is, there is a general weakness of the vasomotor system, and lowered arterial tension, without obvious organic disease of the circulatory apparatus. In digestive practice such cases usually coexist with

constipation, subacid dyspepsia, gastroptosis, movable kidney, etc.—all conditions of depression. In one such case there has been marked improvement under the use of eight drops of 1:1000 adrenalin solution, corresponding to one-fourth milligramme of adrenalin, t. i. d. After two weeks the pulse usually becomes hard enough to suggest the advisability of an intermission of a week or two. In this case I was also led to use this drug on account of a suspicion of Addison's disease, there being marked pigmentation, though not of the typical color and degree. On account of the local ischemia, produced by suprarenal extract, I have followed the precaution of administering it three hours or more after eating, so as not to oppose the physiological congestion necessary for gastric secretion. I must confess, however, that this precaution rests on theory and the animal experimentation of others, on other mucous membranes, and not on any personally observed harm arising from administration immediately before or after eating. Conversely, I have no proof to offer that it possesses therapeutic value in hyperchlorhydria, being well contented with withholding chlorides and administering atropine.

Acute surgical shock consists of a paralysis of the vasomotor system. Many physicians and surgeons still administer alcohol in such cases, though the contraindication was long ago pointed out by H. C. Wood. The ideal drug, thus far, has been atropine in small doses—say half a milligramme hypodermically. It is possible that adrenalin will prove still better.

When heart disease coexists with arteriole depression a vasomotor stimulant that does not stimulate the heart, at least in equal degree, is contraindicated. From cautious experimentation I have become convinced that suprarenal extract is available in most such cases. Particular reference is made to the case of a man of seventy-eight, with chronic myocardial degeneration and tachycardia, whom I have seen almost weekly for three years. To be perfectly candid, his digestive disturbance is of minor importance compared with the circulatory trouble, and for some weeks at a time both chemical and mechanical digestion have been well performed with no direct assistance, though he usually requires a laxative. In this case suprarenal extract has seemed to give superior results to digitalis, strophanthus, etc. When the arterial tension has risen sufficiently he has usually had strychnine in the intermission. This experience has been corroborated by several other cases, but none so thoroughly studied nor under observation for so long a time. I may as well admit just here that the tonometer which I constructed as soon as my attention had been attracted to the first German reports of this instrument, stands neglected in a corner, the finger and general observation of a case being of greater practical value.

In a case of gastric ulcer, probably located at the pylorus—from the escape of gas by the mouth after the stomach had been kept thoroughly empty of food and clean for two or three days, and from the sensation of maximum pain at the time of emptying the stomach into the duodenum—adrenalin proved serviceable in the highest degree. Hemorrhages had occurred several times before I saw the case, but the history was so vague that this fact was not diagnosed until I actually saw blood, when the patient and her family said that exactly the same material had been vomited before. About fifty cubic centimeters of blood was vomited, and an unknown quantity appeared as tarry stools. Six doses of one-fourth milligramme each of adrenalin, administered during forty-eight hours, stopped the hemorrhage, and after three days' fasting and two weeks of gastric feeding the hemorrhage has not reappeared, though vomiting has occurred several times. This case is of possible interest in that a test meal administered a few days before the hemorrhage appeared showed an entire absence of free HCl, though the total acidity was 90 degrees. There was marked organic fermentation. Personally, I was not surprised at this result, but I mention it as there is quite a prevalent opinion that gastric ulcer depends upon and is marked by a high degree of free hydrochloric acidity. As a local action was especially desired, the adrenalin was given by mouth, and produced not the slightest disturbance, though even bismuth salicylate and hydrogen peroxide could not be tolerated.

I have had no experience with suprarenal extract in intestinal hemorrhage.

Except in duodenal ulcers, etc., it would be obviously impossible to secure a local action, and one would have to rely on the general effect. The use of suprarenal extract in the rectum is, of course, purely palliative, unless applied locally for certain minor hemorrhagic and catarrhal conditions.

In Addison's disease suprarenal extract has not proved very efficacious, because the disease includes several elements, of which the depression of vasomotor force is probably the least important. I have had experience with only two doubtful cases, of which one has been cited, since beginning to use the extract.

As to choice of preparation, Takamine's adrenalin is far less apt to decompose; it is capable of administration in definite and minute dose; it is unirritating; it introduces no digestible nor fermentable material; it may be given either hypodermically, by mouth, or otherwise; dose for dose, it is at least as cheap as cruder preparations. Whenever an extract of suprarenal gland is indicated as a vasomotor stimulant, adrenalin should be preferred. In the empiric treatment of suprarenal disease, it is probably better to use the cruder extracts as possibly including other active principles.

The term vasomotor stimulant in this paper applies to increase in tonicity of arterioles, which seems logical. The term has been employed by some writers to indicate a depression of vascular smooth muscle with increase in caliber of vessels.

AN UNTOWARD OCCURRENCE IN THE USE OF SUPRARENAL GLAND.

That every drug capable of doing good when indicated is also powerful enough to do harm under certain conditions is well shown in the following report made by BLOCH in the *Medical Record* of July 6, 1901. As he well says, the extract of the suprarenal gland is so much in use at present that he thinks it is his duty to report a somewhat unpleasant experience he has had with it. A strong young man, professional singer, was operated on last January for chronic empyema of the left antrum of Highmore and frontal cavities (Mikulicz's method). In March the secretion had completely ceased; but there was a strong adhesive band between the middle turbinated body and the septum (the result of a former nasal operation by another rhinologist) which had to be severed, as it not only interfered with the resonance of the voice, but began also to cause reflex disturbances (of an asthmatic nature). To prevent profuse bleeding a little suprarenal extract was dusted into the left nostril. This had been done repeatedly in this same case without any ill result, but this time a little more powder was employed than usual. The following day the patient returned with complaints of headache and pain in the throat. On inspection edema of the soft palate was found, particularly marked in the uvula, and congestion of both tonsils and lateral pharyngeal columns, most pronounced on the left side. The patient being anxious not to discontinue his professional engagements several minute incisions into the left tonsil and adjoining cellular tissue were made, a procedure which resulted in rapid depletion of the engorged tissues.

But for several days there were complaints of pains in the lateral columns, and a few days later a (catarrhal) superficial ulcer developed in the right tonsil (which had not been incised), but healed promptly under appropriate treatment. Four days later a similar ulcer appeared in the left tonsil; this also healed promptly.

It seems almost certain that the described edema and subsequent affection of the lateral columns and the tonsillar ulcers were due to the strong vasomotor action of the suprarenal gland, which had contracted the nasopharyngeal blood-vessels to such an extent that venous stagnation resulted peripherally.

It might be argued that in this case the edema ought to have been unilateral; but when powder is blown through one nostril some of it will inevitably get into the other also with the expiratory current of air; and there was, indeed, more marked congestion of the left side. Yet in this connection the author reports a similar case (of pharyngeal edema) which he saw six years ago at the New York Polyclinic. The patient, an anemic young man, seventeen years of age, had apparently done nothing but spray his nose and throat with a mixture of benzoinol and Dobell solution (1:7) which was ordered for his chronic rhinopharyngitis. The author resorted in that case to the hypothesis of idiosyncrasy. Still, in this present case, he thinks too much of the suprarenal gland had been given, and advises that this substance be applied in aqueous solution.

The Therapeutic Gazette

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Leading Articles.

THE IMPORTANCE OF THE EARLY RECOGNITION OF BEGINNING TUBERCULOSIS IN ITS RELATION TO TREATMENT.

Under this interesting and important title we have recently read an article by one of the greatest living experts in tuberculosis, Dr. E. L. Trudeau, of Saranac Lake, N. Y., which he published in the *Medical News* of June 29, 1901. Dr. Trudeau has had such a large clinical experience in the treatment of pulmonary tuberculosis in the Adirondacks that anything that he may have to say in regard to this disease must command much respect and attention. The more so because not content with mere clinical observation he has gone still further, and from time to time has carried out scientific investigations upon the propagation of tuberculosis, or upon its bacteriology, or upon the use of tuberculin, all of which has added much to our knowledge concerning this universal disease.

One of the chief objects of the article to which we have referred is to emphasize the point that one of the most important factors in the institution of the so-called "open-air method" and "sanitarium treatment" of tuberculosis is to see to it that only proper cases are "admitted to these cures," in order that correct statistics may be published concerning them. As Trudeau well says, "these methods have given us renewed hope in the treatment of tuberculosis, but the results obtained by many institutions now projected or already built will be disappointing unless the all-important bearing of an early diagnosis in the successful treatment of the disease is generally realized." He also calls attention to the fact that many patients that came under his observation had been advised months previously that they were not ill enough to make a change of climate necessary. There certainly can be no more grave error in the practice of medicine than the one we have just mentioned. It is far better for the physician to err upon the side of excessive zeal in sending a suspected case of tuberculosis to a proper climate than it is for him to delay until the physical signs and pathological changes are so marked that he who runs may make the diagnosis of pulmonary tuberculosis, for after a time neither climate nor any other aid can in the majority of cases be of service to the patient. The time to throw a bucket of water, with the expectation of extinguishing a fire, is not after a roaring blaze has been established, but when the first little curl of smoke shows that trouble is about to develop. In the latter instance a comparatively small amount of water will extinguish the blaze and prevent destruction, but later on no human agency can arrest the destructive process.

We happen to know that Dr. Trudeau is an advocate of the employment of tuberculin for the purpose of determining the early diagnosis of pulmonary tuberculosis. His very large experience makes us regard this opinion with great respect, and doubtless he resorts to this method of diagnosis in order that the earliest possible decision may be arrived at. For our part we do not think it necessary to use tuberculin, because upon the development of objective or subjective symptoms which lead us to believe that a patient has possibly become mildly tuberculous, it is our invariable rule to order them to a climate which will be valuable in its influence upon their pulmonary condition. If the condition of the lung which

produces physical signs, or general symptoms, is not actually tubercular, it is at least so favorable a field for the development of the tubercle bacilli that it is but one step from this disease, and a climate should be resorted to with the attempt of improving the condition of the lung so that it will no longer prove a favorable site for the development of this pathogenic microorganism. As we have said more than once in these columns, to send a patient well advanced in tuberculosis to a point distant from his home simply adds homesickness to his other maladies without the possibility of benefiting him; indeed, in many cases it is a cruelty. To send him away in the truly incipient stages is not only a duty but a kindness.

THE UNTOWARD INFLUENCES OF DIGITALIS.

Those of our readers who have subscribed to the GAZETTE for a number of years will remember that in 1897 one of its editors published a paper in its pages dealing with the important question of the untoward and cumulative effects of digitalis. In this paper a careful consideration of what was meant by the term "cumulative effect" was taken up, and a number of letters from prominent practitioners were published in which it was shown that there was some divergence of opinion as to what this term meant, but a general consensus of opinion that digitalis, given in large doses for a considerable period of time, was capable of producing an influence which was practically poisonous in its character. By this we do not necessarily mean that digitalis accumulates in the body, but rather that its effect is so prolonged that the influence exerted by one dose is maintained for so long a period that it overlaps the influence produced by subsequent doses, so that in the end a patient on a certain day is not alone under the stimulative effect of the number of doses actually administered, but in addition has a large amount of influence left over from previous days. It is this curious characteristic of the drug digitalis which has taught our English cousins to be more cautious in its use than we are, and in many instances to discontinue its administration every few days so that the patient does not develop a cumulative effect.

In *American Medicine* of June 29, 1901, Dr. Hall, of Washington, D. C., publishes an interesting article in which he details a number of cases in which the administration of digitalis caused hallucinations or delirium, and in the course of his article he quotes the paper to which we have already referred. In this article he also quotes from a number of other writers who have described somewhat similar conditions produced by full doses of this drug, the chief of which is one by Duroziez, whose report entitled "Du délire et du coma digitaliques" was published as long ago as 1874. In this paper he reported no less than twenty cases in which illness or death accompanied the administration of digitalis, and were in his opinion caused thereby. There seems to be some reason to doubt whether the cases which are reported by Dr. Hall were actually due to digitalis, although it is a fact that when this drug was stopped the hallucinations seemed to decrease.

It is very important that physicians should be kept well informed of the possible untoward influence of certain drugs in order that the true cause of certain symptoms occurring in the course of a disease may not be attributed to pathological processes when they should be attributed to the remedy which is being administered.

MOSQUITOES, MALARIA, AND QUININE.

The editorial pages of the THERAPEUTIC GAZETTE have so often contained articles concerning the spread, development, and prevention of malarial fever by various means, most of which are comparatively novel, that we feel that our readers are well acquainted with the fact that the mosquito in one of its forms is the means by which healthy individuals are inoculated with the parasite. At various times the GAZETTE has contained in its original articles or editorial pages papers which were designed to indicate methods by which the development of the mosquito might be largely arrested or controlled, and other information has been given which shows proper protection from the bite of this insect is efficient prophylaxis against malarial disease. In connection with these well-ascertained facts concerning the development and spread of malarial infection, it seems to us that an article which has been recently published in the *British Medical Journal* by Sir William MacGregor, the Governor of Lagos, is of very considerable interest.

British government officers in all tropical countries are naturally on the *qui vive* for means which will enable them to maintain their executive ability in the best possible condition. As MacGregor well says, the two things which are necessary for the purpose of making Lagos a great and prosperous commercial town, by far the greatest in West Africa, are the extension of the Lagos railroad to Northern Nigeria and the control of malarial fever. So it has come to pass that the medical officer in the discharge of his functions as scientific investigator and physician has developed into being as powerful a factor in the development of commerce as is the railroad capitalist or engineer.

It is interesting to note that there are three ways in which malarial fever may be prevented amongst foreigners and natives who dwell in a distinctly malarial neighborhood: First, the prevention of infection by the use of gauze netting; (2) its prevention by the administration of quinine so that the parasite will find the body in such a condition as to be unfavorable for its growth; and (3) to attack the mosquito in his breeding ground by means of petroleum or other substances known to destroy the larvæ or the mosquitoes themselves. As an illustration of how important the use of quinine is as a prophylactic, we find MacGregor asserting that in all probability the day will come before long when newly appointed officers for places like Lagos will have to undergo a test as to whether they can tolerate quinine or not, and he asserts that a man that cannot, or a man that will not, take quinine should not be sent to a malarial climate, because he is not only risking his own life, but is a danger to others, since mosquitoes may transfer the infection from his blood to other hosts. He bases this opinion upon the fact that officers of the government who take prophylactic doses of quinine are kept practically free from fever. That officers engaged in His Majesty's service are fully alive to the fact that malarial fever is largely preventable is also shown by his further discussion of the difficulties which surround the administration of quinine to the natives, who in the first place are apt to refuse to take the medicine, and for whom in the second place the government cannot afford to pay for the seventy tons of quinine a year which would be required to give a daily one-grain dose to each of 3,000,000 people. While these prophylactic measures are, therefore, impossible from a financial standpoint, it is interesting to note that in the town of Lagos itself a special vote of $2500 has been made for the purchase of quinine for this particular purpose, and that several dispensaries have been established at which quinine is dispensed. So alive are the British to the necessity of these measures that a committee of ladies have formed themselves into a league in Lagos which has for its chief purpose the administration of quinine to native children and others who may be especially exposed to fever.

There are few instances in medicine in which scientific investigation has extended over so few years and yet been so productive of immense good as have the investigations in regard to malarial infection, and popular lectures are now arranged for in South Africa with the object of diffusing the knowledge that malarial fever is a mosquito-borne disease, and of interesting the laity in the measures which should be instituted to diminish the malady.

TREATMENT OF JACKSONIAN EPILEPSY BY OPERATION.

It will be remembered that within the last decade a wave of enthusiasm for using the trephine, as applied to laymen and particularly to those of financial responsibility, swept the country. This enthusiasm was followed by a skepticism concerning the good effects to be derived from the use of the trephine, especially for the cure of epilepsy, that was perhaps carried too far. So far as Jacksonian epilepsy is concerned, the opinion of experienced surgeons is well expressed by Putnam when in the course of a careful study of this subject he says:

"It may be stated as a fact that would probably be generally admitted, that operations for the relief of focal epilepsy, whether these aim at the removal of local sources of irritation or of diseased areas involving the cortex, or of the removal of the apparently normal cortex, are often of unquestionably great benefit; although they have not accomplished nearly all that was hoped of them. Not to speak of special cases and groups of cases, some of the best of which have been contributed by American physicians, this statement is substantiated by several recent and careful compilations of German surgeons, as Braun, Graf, and Matthiolus.

"When it comes to the important question of the comparative merit of cortical excision, as against operations of less magnitude, such as simple exposure of the cortex or loosening of dural adhesions and the like, which sometimes have an extraordinarily favorable effect, the case is not so clear, especially when it is remembered that the excision is likely to cause lasting incoordination of slight degree, and that the resulting cicatrices may be by no means indifferent for the health of the surrounding parts of the brain.

"Still, the figures cited by Matthiolus, taken for what they are worth, indicate rather better results from operations in which the brain has been included in the operation than where only lesions of the brain coverings have been treated.

" 'Cures'—*i.e.*, for example, a cessation of fits for five years—have been very few in number, and although such a case as that of Collins and Gerster's is encouraging, where six years have elapsed during which, after cortical excision but under continual bromide treatment, no fits have occurred, is very impressive, it is to be remembered that in the first case of the series reported by McCosh an equally good result followed simple trephining, separation of the adherent dura from the roughened bone, and the removal of bone fragments, although there can be little doubt that the broken adhesions instantly reformed, so that the local conditions of nutrition probably remained in the end unimproved."

CYTO-DIAGNOSIS OF CEREBROSPINAL FLUID.

Rabinski and Naycotte, after having by lumbar puncture procured cerebrospinal fluid from 120 healthy human beings, note that there was in not a single instance a deviation from the normal. Whenever the cerebrospinal fluid was withdrawn from cases of tabes and general paralysis, the lymph cell was found even when there was no other objective sign of the disease than is usually presented by that of Argyll-Robertson. In one case of spinal sclerosis and in three cases of epilepsy the cell was also observed. These authors, therefore, deem the presence of this cell of great diagnostic value in the early stages of tabes and general paralysis. They hold, indeed, that by its aid early atrophic tabes can be distinguished from other atrophic changes of the cord; and in at least one case, even before the development of visual disturbance, so many polynuclear lymph cells were found that the fluid was actually turgid.

These findings in the main corroborate those published by Widal, and as it is well recognized that the earlier vigorous measures are adopted in the treatment of tabes the more likelihood there is of arresting its course, it is evident that by a perfectly safe and simple procedure, and one which can be rendered painless without the use of a general anesthetic, the general practitioner may in case of doubt find in the cerebrospinal fluid evidence enough to justify him in applying a system of therapeutics at the time when it is most likely to be efficient.

Reports on Therapeutic Progress

ACUTE CARDIAC FAILURE.

POWELL in a lecture printed in *The Lancet* of June 29, 1901, tells us that a cardinal point to be borne in mind with regard to young boys and girls is their special aptitude for short spells of active exercise but their complete unfitness for prolonged, fatiguing, monotonous exertion. This is almost the reverse condition applicable to older people, and it is one often forgotten, not perhaps so much at school as at home. Athletic fathers, robust elder brothers, proud of the sporting alertness and eagerness of young boys, will often keep them out on long bicycle, golf, or shooting expeditions, and may thus cause grave damage to the young and rapidly developing heart. There is certainly a lack of supervision of young men training for athletics at the universities, although it is true that they come already seasoned and tested from the schools. There ought to be some medical "don" to supervise university athletics, who should, however, be himself thoroughly in sympathy with the athletic spirit.

The treatment of acute failure of heart from overstrain involves a period of a few weeks' complete rest and often many months of careful supervision. Young people make a rapid and generally a complete recovery, provided no actual lesion has been produced. The younger they are the more ready and complete the recovery. In youths and young men a degree of irritability of heart is often

to be observed for many months, even for some years, the patient suffering from attacks of palpitation and cardiac pain on slight fatigue or exertion and often at night. Quiet exercise must be resumed after a time, and it is better to allow interesting exercises within measure, such as croquet, level cycling, golf, and easy tennis, rather than more formal courses of training. But each case must be considered on its merits. In some cases of cardiac overstrain in young people it will be found that a feeble lung capacity has led indirectly by imperfect pulmonary circulation to the heart distress. In such cases well ordered respiratory exercises by developing the lungs will facilitate the work of the right heart and help the general circulation by increasing thoracic aspiration. Well planned sea voyages or sailing trips from the coast are peculiarly advisable for adults, provided strict injunctions against smoking and all strong alcoholic drinks are given.

Another form of fatigue heart failure is that frequently met with in acute disease. It is too long a story to go into now. It has been dealt with with some minuteness elsewhere, as met with under one of the most common of circumstances—viz., in acute pneumonia. It is met with also in enteric fever, in acute bronchitis in old people, during a severe asthma paroxysm, and in other conditions, such as functional tachycardia. The heart failure in these conditions may come about with a gradual quickening day by day of the pulse until it becomes fluttering, confused, running, representing little more than peristaltic movements of the heart. In other cases—and this more commonly in plethoric, fleshy, large-framed people with a pulse at first not unduly quick, with considerable tension and accentuation of the second sound—the failure occurs quite suddenly, attended with rapid breathing, pallor, and cyanosis, sweating, collecting mucus rattles in the chest, and almost imperceptible running pulse. Under strong stimulation and the subcutaneous use of strychnine the patient may rally and all the conditions improve, but relapse often, and in elderly people almost always, takes place. An attack occurring in an old person with bronchitis or pneumonia is almost of fatal augury; the senile heart cannot recover the fatigue, and hence when the pulse mounts up to 120 in old people recovery is rare, unless the rapidity be attributable to functional disturbance from some temporary cause. With a sound heart in young persons no condition is too desperate for possible recovery.

Now to discuss the treatment of heart failure under these varying conditions would be to discuss the whole management of the illnesses in question. There are a few factors, however, in special concern with heart failure in acute disease, viz.: (1) maloxygenated and otherwise contaminated blood-supply burdening the heart; (2) exhausted innervation from sleeplessness and physical cardiac fatigue; (3) positive obstruction to the flow of blood through the lungs; and (4) changes in the texture of the heart muscle incidental to the disease and especially to the pyrexia.

The first two indications are undoubtedly met by depleting the blood volume from the venous side by attention to secretions, the occasional use of mercurials, careful limitation of the food taken in place of the overfeeding often to be observed, and in some cases a small bloodletting. The timely employment of oxygen inhalations at intervals through the day is a remedy of great value which insures an improvement in the aeration of the blood sent to the left ventricle and so direct to the coronary vessels. It is by no means necessary to employ oxygen inhalations in the majority of cases of pneumonia, but in all severe cases the cylinder should be at hand to anticipate the threatened heart failure.

Exhausted innervation and pulmonary obstruction are met with in pneumonia, advanced typhoid fever, and asthenia especially. Strychnine is the most powerful cardiac tonic we know, and subcutaneously used is the best remedy for heart failure. In these cases, however, a frequent concomitant symptom is ballooning of the abdomen, and it is both dangerous and inefficient for the purpose required to give strychnine in such cases by the stomach. In asthma, pneumonia, and in enteric fever it is often possible in combination with the free use of oxygen and the occasional injection of strychnine to give a sufficient subcutaneous dose of morphine to procure some much-needed sleep. When the heart threatens to fail in asthma the paroxysm must be thus shortened. In bronchitis, on the other hand, under no circumstances can morphine be so given. Threatened cardiac exhaustion in asthma has often been observed through the want of small administrations of concentrated and assimilable food essences at in-

tervals to support the patient. Alcoholic stimulants are, of course, often necessary, the dose being adapted to suit the individual case.

The changes incidental chiefly to pyrexia in the heart muscle as a cause of failure are mostly to be considered in the prolonged fevers, and will be best warded off by a judicious mitigation of the pyrexia. In cases where there are laboring action of the heart and a tendency to cyanosis and stagnation of surface blood, much better results have been seen from hot-water than from cold-water sponging or cold applications. The surface circulation is facilitated, heat is rapidly lost, and the skin functions encouraged, all tending to lighten the burden of the heart. In the after-treatment of pyrexial diseases in which there has been prolonged rapidity of heart or any sign of heart failure, a chief regard has to be paid to restoration from cardiac fatigue. Thus our sea level and country resorts are preferable to hilly places, and exercise must only gradually and tentatively be resumed.

SOME THERAPEUTIC USES OF THE ACTUAL CAUTERY.

Despite the activity in physiological research displayed in recent years, we are still without a satisfactory explanation for the efficiency of certain therapeutic measures that have long enjoyed successful employment. In treatment especially it is a wise rule to hold fast to that which is good, and, while ever maintaining an open mind, not to be carried away by the enthusiasm attending the introduction of every new remedy.

Here, as elsewhere, the safe position is midway between extreme radicalism and extreme conservatism. There can be no doubt that many useful therapeutic measures employed at one time or another have fallen into undeserved neglect, while others of unproved utility are used all too liberally because of their novelty alone. It seems possible, further, that the vast number of drugs, so easy of administration, that have in recent years been evolved, have perhaps too largely replaced certain manipulative measures for which no true substitute has been provided. Among these are bleeding by leeches, cupping-glass, or lancet, and counter-irritation by blister, moxa, cautery, setons, and the like.

In a practical address delivered recently before the Hunterian Society, Sir William M. Banks spoke of the neglect of the actual cautery in surgery, and reviewed some of the conditions in which this agency was capable of affording relief. Thus the periostitis and osteitis developing at a late stage of syphilis, and often attended with agonizing, boring pain, will often be remarkably ameliorated by thorough application of the actual cautery at a white heat, the patient being anesthetized and constitutional medication being of course not neglected. So, too, the actual cautery, conjoined with rest and a properly applied splint, can be employed with great advantage in the treatment of certain diseases of joints, especially the knee-joint, in gouty or rheumatic individuals, resulting from traumatism, when the condition is one of synovitis, with swelling of the articular ends of the bone, and thickening and matting of periosteum, fascia, ligaments, and aponeuroses. The use of the cautery is indicated further in the presence of acute inflammatory conditions of the spinal column and the spinal meninges following traumatism. In addition to the foregoing conditions for the relief of which the cautery has been used, Banks recommends its employment in the treatment of cases of pruritus ani of undetermined pathology, attended with exaggerating wrinkling of the skin around the anal orifice and presenting an appearance suggestive of slightly damp, rugose wash-leather. This condition has proved exceedingly resistant to all forms of treatment, but it will usually yield promptly to the application of the cautery.—*Medical Record,* June 29, 1901.

THE INFLUENCE OF CLIMATE ON THE NERVOUS SYSTEM IN DISEASE.

In the *Denver Medical Times* for June, 1901, ESKRIDGE details his ideas in regard to this question as follows, considering the unacclimated and the acclimated patients at the same time, under one heading:

Most health-seekers who come to Colorado are suffering from tuberculosis of the lungs. Many nervous and mental disturbances frequently develop during the course of this disease. The most prominent of these are insomnia, nervous irritability, mental depression, sometimes amounting to melancholia with suicidal tendencies, and meningitis.

What, if any, are the influences of Col-

orado's climate in developing, lessening, or in relieving these mental and nervous complications in tuberculosis?

Insomnia in tuberculous subjects that is due to malnutrition resulting from wasting of the tissues, poor assimilation, and indigestion, is almost invariably relieved here if the condition of the lungs is such as is likely to be improved by a residence in this climate, provided the patient does not take too much exercise, especially during the first months of his stay in Colorado.

Nervous irritability, due to the depressing influence of tuberculosis, may be greatly lessened or almost entirely gotten rid of if the health of the patient improve. On the other hand, persons who have had irritable and impressionable nervous organizations from childhood, the "inherently nervous," as the author has termed them in previous communications, are not likely to receive any relief from their nervousness in Colorado. In fact, this class of cases are likely to become more nervous here unless a very quiet life is led. Of course, there are exceptions to this broad statement.

Mental depression in tuberculous subjects is more common here than what is found at sea level. There are several reasons for this state from causes other than climatal. Patients here are often separated by hundreds or thousands of miles from relatives and friends, and they feel their isolation and loneliness keenly. They frequently come here with insufficient means for their support, and are compelled to seek some employment immediately on their arrival, or before they are able to do any kind of work. It has been noted that an undue proportion of cases of severe mental depression and melancholia are among these two classes. Melancholia is exceedingly rare in the better favored classes of tuberculous subjects.

The question may be asked: Is tuberculosis more likely to attack the central nervous system in Colorado than is found to be the case at sea level? In the adult, we may safely answer in the affirmative; in children, if we take into account the larger proportion of tuberculous parents in Colorado, it seems to the author that we are justified in answering in the negative. The reason for the central nervous system in the tuberculous adult suffering more frequently from tuberculosis than what is found at sea level is not far to seek. Of the great number of tuberculous patients that come to Colorado for their health only a small percentage are permanently cured. Not an inconsiderable number die after a few months' or a few years' residence here, while the vast majority that do well live many years and lead comparatively useful and active lives. These always remain tuberculous, with a lessened power of endurance and resistance. They often do as much work as healthy persons, and often more, and expose themselves until at last their vitality is permanently far below normal, when the tuberculous processes begin to attack the various organs of the body, until finally the bacilli find entrance to the central nervous system, especially to the membranes of the brain. In a few words, tuberculous subjects live longer in Colorado than at sea level, more tissues are invaded by the bacilli, and the membranes of the brain form no exception to the general process of invasion.

How are such functional diseases of the nervous system as hysteria, neurasthenia (commonly known by the laity as nervous prostration), chorea, epilepsy, migraine, nervousness or nervous excitability, insomnia, and neuralgia influenced by the climate of Colorado?

Hysterical subjects do better at sea level than in Colorado, unless the hysterical manifestations are due to depressed states of health that are relieved by a residence in Colorado. The same may be said of neurasthenic subjects, except that some of the causes of neurasthenia are more commonly removed by a residence in Colorado than are those of hysteria. Neurasthenic persons should lead quieter lives in Colorado than at sea level. It is here that the Weir Mitchell "rest cure" shows off to excellent advantage.

Sufferers from sick-headaches, or migraine, usually do better at sea level than in Colorado, although the headaches are often relieved for a time on the patient's first coming to Colorado, but are made worse by a prolonged residence here. After a short stay here sufferers from sick-headache are often free for months on returning to low altitudes. The ideal life for those afflicted with migraine is a frequent change of climate from Colorado to sea level, living at least two-thirds of the time at low altitudes.

Choreic patients should be sent by choice to Colorado for treatment, because all such functional nervous diseases are more or less unfavorably influenced by the climate here, especially when the altitude exceeds 4000 to

5000 feet. However, if by force of circumstances choreic children are compelled to come to Colorado, they can be cured in about as short a time here as they can at sea level, provided the precaution is taken to keep the patients in bed until all violent movements have subsided.

Epileptic patients seem to be unfavorably influenced by the climate here, but not nearly to the extent popularly believed. As a rule, the higher the altitude the more violent and frequent the attacks.

The nervous and the impressionable from childhood are less comfortable in Colorado than at low altitudes, but they can reside here with comparative comfort if they live quiet lives and do not enter into business or social engagements that are too exacting. On the other hand, those who have become nervous and run down by worry, overwork (especially the mentally exhausted), too great social cares, and by bearing burdens too great for their strength, if they come to Colorado and live quietly, without allowing themselves to become mentally or physically exhausted, they do well here, and apparently regain their health more rapidly than at sea level. One apparent reason for this result is the amount of sound and refreshing sleep obtained here for this class without the use of hypnotics.

Insanity is less frequent here than in Eastern States, in proportion to the population. It runs about the same course here as it does at sea level, with the exception of the excitable and wildly maniacal, whose irritability is apparently increased by high altitude and a dry atmosphere.

Organic disease of the nervous system. No marked difference in the frequency, course, and results of this class of nervous diseases here has been observed from what has been found to hold in Philadelphia, in which city the author practiced for nearly ten years before being forced to seek Colorado's climate.

REMOVAL OF POWDER STAINS WITH HYDROGEN PEROXIDE.

Dr. WERTMAN, of Mahanoy City, Pa., has been greatly interested in an article on the removal of powder stains with H_2O_2, by Dr. J. N. Rhoads, in *American Medicine* of April 6, 1901, and in that of Dr. F. K. Smith in the issue of April 27, calling attention to the prior use of this agent by Dr. C. W. Crile. He claims nothing new in this connection, but records a somewhat similar case with a yet more extended nature, in which this agent exercised a wider range of therapeutic applicability.

Mr, Wm. A., aged thirty-four, English, came to this country twelve years ago. He was a miner, and while at work on January 27, 1897, a fall of top coal occurred, striking the thumb of the left hand near the base. The author divided the extensor tendon, shredding the one end into a number of filaments, causing retraction of the other, stripping the integument, connective tissue, and part of muscle forward toward the second joint. The wound seemed a mass of coal dirt, short, sharp pieces of coal having even penetrated the solid skin all around the lacerated part, as well as filling the wound. In the coal-mining regions this condition of affairs is often met with, and nearly all miners desire relief from the discoloration which used to be so hard to prevent. He therefore used H_2O_2 freely. After continuous use of this agent for about ten minutes he sutured the tendon to the further-end filaments, only three of which could be thus treated with the finest needle, so small were the divisions. When the outside wound was sutured H_2O_2 was again thoroughly applied. Three days after the cut was healed without formation of pus and with no discoloration whatever.

It was while attending this patient that particular attention was given to the prevention of discoloration. The author had used hydrogen dioxide for from two to three years before in this class of injuries. These wounds are frequently exceedingly poisonous, owing, it is claimed, to some particularly poisonous coal which always produces complications no matter how slight the injury, a mere scratch—such as inflammation, swelling, abscesses, and gatherings—often causing weeks of suffering, and sometimes even loss of life. When thus employed H_2O_2 has always proved a prophylactic, facilitating repair without any untoward symptoms.

Since, however, the case specifically reported above, the author has been using it for both purposes with universal success.—*American Medicine*, July 6, 1901.

THE TREATMENT OF CARBOLIC ACID BURNS AND POISONING.

Dr. CHARLES PLATT, referring to the article "On the Use of Alcohol in the Treatment of Carbolic Acid Burns and Poisoning" in *American Medicine* of May 25, 1901,

states that while alcohol is efficient in preventing phenol eschars, its use internally as suggested would be decidedly dangerous. The case cited (when 3½ ounces of absolute alcohol was introduced into the stomach of a child 3½ years old!) resulted fatally, of course. Rodman's patient lived because the alcohol was at once removed by stomach washing.

For internal administration nothing is more efficient in preventing local injury than vinegar or diluted acetic acid, an agent too little used—in fact, it seems, too little known—in this connection. In all cases, however, sodium sulphate should be administered as a chemical antidote to the phenol already absorbed. The physiological antidote will be suggested at the bedside.—*American Medicine*, July 6, 1901.

THE THERAPEUTIC VALUE OF ADRENALIN CHLORIDE.

DUDLEY REYNOLDS, of Louisville, gives us the following results of his use of adrenalin chloride in *American Medicine* of July 6, 1901:

1. It is a powerful hemostatic, and acts promptly, generally within one minute from the time it is applied locally to mucous surfaces.

2. Its effects persist from twenty minutes to four hours.

3. It promptly relieves ciliary pain in all forms of keratitis, iritis, and even the cyclitis of glaucoma.

4. It reduces ocular tension in glaucoma, and apparently prevents hemorrhage in iridectomy.

5. It promptly clears up interstitial opacities of the cornea, following contusions, and seems to modify favorably the opacities of punctate keratitis in cases of syphilitic iritis.

6. It will, in many cases, so reduce the swelling in the tear passage as to allow a stream of fluid to pass from Anel's syringe through the duct, without the use of a probe. In an old purulent dacryocystitis, the pus being pressed out with the finger through the tear sac, about two minims of adrenalin was passed readily through the duct into the nose. Repeating this procedure daily, prompt recovery was secured without the introduction of the probe. In a great variety of tinnitus aurium, prompt and sometimes lasting benefit follows the introduction of a drop of adrenalin solution through the Eustachian catheter, blown into the tympanic cavity. A number of cases of tinnitus without serious impairment of hearing have been permanently relieved by two or three applications of the adrenalin through the catheter.

7. In all forms of swelling in the lining of the nose, prompt relief follows the application of four or five minims of the adrenalin solution sprayed into the passage. In this way the superior crypts may be readily opened, and medicated fluids sprayed into the passage, or other applications made, where access is otherwise impossible.

It renders operations in the nasal passages and elsewhere nearly or quite bloodless, and does not, as some claim, predispose to secondary hemorrhage, but has a contrary effect. The 1-to-1000 solution of adrenalin in sodium chloride may be relied upon to relieve any case of epistaxis.

In cases of secondary hemorrhage, after operations in the nasal cavities, or tonsils, an application of adrenalin solution on a cotton mop, pressed upon the bleeding surface, proves promptly efficient as a hemostatic.

The adrenalin solutions are in every sense of the word superior to any preparation of the suprarenal extract, or of the desiccated glands, which has yet been procured, and the world is deeply indebted to Takamine for his discovery.

THE TREATMENT OF GASTRIC FERMENTATION.

ALIEN JONES tells us in the *International Medical Magazine* for July, 1901, that the only reliable manner of telling whether or not fermentation is going on in the stomach is by direct examination of its contents. Eructation is a most unreliable symptom of fermentation, existing as it does more frequently in nervous disturbances of the stomach than in organic diseases of the organ. The treatment of fermentation differs according to the kind of fermentation found; whether it be lactic acid, acetic, or butyric acid fermentation, or that form due to yeast or sarcina growth. If chronic gastric catarrh is present, it demands proper and continued treatment; but while that is carried out the symptom fermentation should be combated by diet and drugs. The diet varies with the chemistry of the stomach. If butyric acid is formed, fats should be withheld. If acetic acid is present, starches and sugars should not be allowed. Usually,

if no stagnation is present, this modification of diet is sufficient to correct the trouble. Lactic acid is not often formed in abnormal quantities unless free HCl is absent and many lactic-acid-forming bacilli are present. In such cases HCl should be given, and if the disorder persists in spite of lavage, intragastric electrization and astringent lavements, pepsin combined with benzonaphthol, resorcin, bismuth salicylate, or sodium hyposulphite may be administered. If with one or more of these fermentations there is uncomfortable flatulence, great relief is afforded by neutralizing the acids formed and simultaneously soothing the mucous membrane. In many cases of fermentation, though there may not be actual stagnation, such as results from pyloric stenosis, there is some delay in the propulsion of the contents into the duodenum. This happens in catarrhal conditions doubtless as a result of tumidity of the mucosa about the pylorus, coupled with more or less spasm. At all events, the patients are often made comfortable by taking the light carbonate of magnesia or bicarbonate of soda. The signal relief following the use of these simple old remedies is no doubt often accentuated by combining them with charcoal.

In treating fermentation due to hyperchlorhydria, we are, as a rule, dealing with marked pyloric turgescence and spasm, coupled with notable indigestion of starches. The diet should at once be rigid and enforced, consisting of milk, eggs and milk.

The question of allowing carbohydrates in this condition is a mooted one, but we have had undoubtedly greater success without them than with them during the active stages of the trouble. If pyloralgia and epigastric tenderness are present, it is best to put the patient on a milk diet for a few days. In this condition there is usually constipation; the stomach refusing to allow its contents to pass freely and readily into the duodenum, fills up with gastric juice at a time when it should be emptying itself.

There is no remedy for this state that compares in efficiency with the now well known prescription of Dr. Stockton. It consists of one part of cerium oxalate, two parts of bismuth subcarbonate, and four parts of calcined magnesia. Of the mixture from one-half to one teaspoonful should be given, stirred in a quarter of a glass of water, at 10 A.M., 3 P.M., and 9 P.M., or thereabouts as to time. Flatulency subsides, gastric discomfort disappears, and the bowels are usually sufficiently opened, at times too much so; and the dose must then be reduced.

The foregoing may all seem merely the treatment of hyperchlohydria, which it is in part; but it is quite necessary in order that later moderate quantities of well cooked, thoroughly masticated, starchy foods may be taken.

It is wholly useless to administer antiseptics and digestants in these cases.

Lastly, we come to the conditions in which, before all others, grave fermentation is likely to take place, namely, pyloric stenosis, benign and malignant. At the outset we recognize that all efforts to combat fermentation in these cases are at best temporary, and no permanent relief is, as a rule, afforded until by surgical means food stagnation is overcome. If the microscope reveals excessive yeast growth in the gastric contents, it may be more effectively checked by salicylic acid than by any other drug used. Usually five or ten grains in capsules are ordered to be taken after meals. Not infrequently vomiting and belching are checked, the microscope shows but little if any yeast growth, and the peculiar odor imparted to the stomach contents is greatly lessened or entirely disappears. Sarcina are not so happily controlled by this drug, nor by any other in the author's hands. Lavage with potassium permanganate solution, two grains to the pint, is usually efficacious in cleansing the stomach, but in twenty-four hours the microscope shows the presence again of many bundles of fungus.

The diet is of importance. Coarse foods should be absolutely prohibited, and the amount of food greatly restricted. Rest, rectal feeding, and but small quantities of concentrated albuminous preparations may be demanded to control persistent vomiting and distress that are not infrequently present. In some cases of benign stenosis with an abundant secretion of hydrochloric acid, taka-diastase serves a useful purpose when starches are allowed in the diet. This is also true of the drug, as has been pointed out by Friedenwald and others, in superacidity unaccompanied by pyloric obstruction.

Perhaps no disease is more hopelessly discouraging to treat than malignant stenosis at or near the pylorus. Lavage is indispensable in the medical treatment of its distressing symptoms. Here we have to deal with excessive lactic acid formation in not a few cases some time in

their history, and the Boas-Kauffman bacilli so uncommonly found in other disorders lend their aid in producing more fermentation and trouble. The lavish administration of hydrochloric acid is the best means to control their multiplication and activity, aside from thorough lavage and the use in the wash-water of silver nitrate, or other antiseptic astringents.

In a few of these cases it has been noted that starch digestion is distinctly promoted by a thick extract of malt.

PRACTICAL SUGGESTIONS AS TO DIET AND TREATMENT OF GASTRIC FERMENTATION.

ELSNER, of Syracuse, N. Y., states in the *International Medical Magazine* for July, 1901, that the larger number of cases of fermentation with gastric catarrh are due to misuse or abuse of the stomach and associated organs of digestion. No treatment can be efficacious which does not emphasize the prime importance of living under proper hygienic conditions with the regulation of the diet, interdicting spirits of all kinds, including malt liquors; also change of scene to a climate where the patient finds it possible to exercise freely in the open air, where he engages, if able, in out-of-door sports. Unless there are contraindications, baths are to be taken daily. The bath, though the patient be plethoric, without arteriosclerosis, may be used to stimulate the "skin heart," thus relieving the patient by eliminating worn-out material and stimulating circulation. In many of these cases the gastric catarrh is materially aggravated by a cardiac insufficiency, due to a sluggish and poorly nourished myocardium. The temperature of the bath must be regulated by the idiosyncrasies and condition of the patient. Living under such changed and favorable conditions, with a determination on the part of the patient to assist (for these unfortunates know their weaknesses), will be sufficient, without the aid of many drugs, to effect a cure, if the mucosa and submucous tissues are not yet materially changed. Dr. Elsner's preference, if drugs are used, is for the bitter tonics, with a full dose of Carlsbad salt early in the morning. The intestinal tract must be kept open, for daily movements are necessary.

Lavage is always used when there is free morning emesis of mucus, or where diet and the above suggestions fail to relieve. The intragastric spray is rarely needed, though occasionally a weak nitrate of silver solution (1:5000) has seemed to improve the symptoms in cases with thickened mucosa. The menthol spray has been used for its sedative effect, where vomiting and pyrosis were annoying and rebellious.

Intragastric electricity has been disappointing. When it has proved of value the benefit has been considered due to psychic effect.

The author has used both galvanism and faradism—the latter oftener than the former.

Faradism with high tension, long, fine wire, and rapid interruptions.

So-called antiseptic drugs without strict attention to diet and hygiene have given only indifferent results. The author's preference remains for the bismuth salts with benzonaphthol. With these he always gives small doses of belladonna and strychnine, or nux vomica.

Favorite formulæ are:

℞ Bismuth subnitratis, 0.3;
Bismuth salicylatis, 0.3;
Pulv. ipecacuanhæ, 0.01;
Benzonaphthol, 0.3.

S.: One such powder directly after each meal.

Or,

℞ Tinct. belladonnæ, 5.0;
Tinct. capsici, 1.5;
Tinct. gentian comp., 32.0;
Aquæ puræ, q. s. ad 128.0.

The diet during early days of treatment: Interdict starches, sweets, and cereals. Equal parts of milk with lime water in small quantities given at intervals of two hours, if stomach is irritable. Barley water salted; animal broths and broiled scraped beef may be added after slight improvement; overbaked toast with liquids taken with spoon. Later a mixed diet, including beef once daily, also eggs, milk, vegetables, Phillip's cocoa, coffee, and fruit for breakfast. Every case is a separate study. The outlining of a suitable diet requires time, patience, and considerable experimentation. There are no set rules.

Believing that the majority of cases of fermentation with gastric catarrh are due ultimately to motor insufficiency, active exercise is advised: as horseback riding, golfing, cycling, and walking, according

to the age and condition of the individual patient. Massage and "Zimmer Gymnastik" after the method of Schreber lead to material improvement. The nervous symptoms, often in the ascendancy, can be relieved by giving the patient agreeable occupation. Make the heart light by keeping the brain active. For well selected cases, where fermentation is excessive, belching of gas annoying, constipation depressing, with pressure symptoms, the following formula is suggested:

℞ Strychnia sulphatis, 0.06;
Fl. extract belladonnæ, 0.6;
Aquæ lauri ceras., 50.0;
Tinct. gelsemii, 12.0;
Aquæ puræ, ad 128.0.
S.: Teaspoonful before each meal.

THE TREATMENT OF SOME APPARENTLY INCURABLE EYE AFFECTIONS.

The mainstay of the successful physician must ever be hope. It is true that recovery will take place spontaneously from many morbid conditions, but in the vast majority of instances this will be favored by, if it does not actually require, the intervention and guidance of the intelligent therapeutist. The remedies employed need not necessarily be drugs; in fact, the greatest good is often brought about by means of physical or physiological agencies. We may not always be able to explain the mode of action by which the good is effected, but meanwhile well substantiated empirical observation and practice are not to be despised. Of the force of the foregoing remarks illustrations will be found in a clinical lecture delivered a short time ago by Dr. Charles Bell Taylor *(Lancet*, April 27, 1901), in which are related a number of remarkable instances in which sight was restored to persons who were believed to be incurably blind. This was accomplished in part by means of electricity, mercury in large doses, alone or in combination with other drugs, derivatives, together with such operative measures as seemed indicated by the needs of the individual case. Thus, electrolysis will be found most useful in the treatment of angiomata, inoperable tumors, adenoids, granular lids, and other abnormal growths. As a cauterant, a cataphoric agent, an illuminant of internal cavities, a destroyer of bacilli, a generator of heat and ozone, electricity is unrivaled, and the electromagnet both as a sideroscope and an extractive agent is indispensable in the treatment of accidents of frequent occurrence. The galvanic and faradic currents are most valuable in the presence of corneal ulcers and opacities, of neuroparalytic keratitis, of paralysis of ocular, facial, and other muscles. Dr. Taylor claims further that the electric current has a potent influence upon all living protoplasm, a restorative power for which there is no substitute, not only in cases of neuritis and degeneration the result of injury, with the accompaniment of palsied muscles, but also in the presence of neuritis and degenerative changes such as accompany and follow upon attacks of influenza, diphtheria, diabetes, typhus, typhoid, rheumatism, and other febrile disorders. As a stimulant, tonic, and catalytic agent under such circumstances he believes it to be of the greatest value, and a last resort in the treatment of atrophy of the optic disk, neurasthenia, asthenopia, failing brain power and general nervous declension such as is observed at the menopause in women, or as a result of advancing years or exhausting disease, or the abuse of alcohol or tobacco, or lead poisoning.

Mercury may be administered in the form of blue pill, ointment, vapor, or subconjunctival injections. For the last purpose the cyanide is to be preferred, the injection being made painless by the addition of a small amount of eucaine. It is frequently necessary to combine morphine with the pill, and pilocarpine is an important adjuvant. The latter may be given internally in doses of 1-2 grain, or hypodermically in doses of from 1-10 to 1-4 grain. Elaterin also is a useful aid in doses of from 1-40 to 1-10 grain, especially in the presence of detachment of the retina.

Concerning bloodletting the advice is given to bleed early and to let the blood flow until the pain, if there is any, has quite gone. When the eye alone is affected, natural or artificial leeches may be applied to the temple with great advantage. Among other useful derivatives are sinapisms, blisters, setons, issues, ice-bags, hot-water bags, Turkish baths, lamp-baths with hot pediluvia, intestinal derivatives, hot and cold aspersion, and the actual or electric cautery for purposes

of stimulation, counter-irritation, or destruction of tissue.—*Medical Record*, July 6, 1901.

NOTES ON THE ACTION OF HEROIN AS COMPARED WITH THAT OF THE OTHER DERIVATIVES OF OPIUM.

In the *Montreal Medical Journal* for June, 1901, GILLIES states that from his experience with the drug the following conclusions may be drawn: Heroin may be regarded as a valuable addition to our therapeutic agents. It is superior to morphine or codeine in irritative cough. In dyspneic conditions it is of special value. As an analgesic it is inferior to morphine, but heroin hydrochloride should have further trial before a definite statement is made in this respect. It is less toxic and therefore more safe than morphine and codeine. He is as yet unable to state whether the habit is likely to be formed or not.

SULPHURATE OF CALX, SOMETIMES CALLED SULPHIDE OF CALCIUM, FOR SUPPURATIVE PROCESSES.

Dr. EARP believes that sulphide of calcium is credited with a curative power, but the channel of its usefulness is too confined and it deserves a wider scope. In a few suppurative processes the current reports show that it has proved an efficient remedy, but there are many instances of a varying character in which its use will unquestionably be followed by good results.

In the case of felon, boil, or stye, probably its curative competency is conceded, and it might be well to bear in mind that the successive manifestations which so frequently occur are avoided in almost every instance by its use.

In cases of purulent conjunctivitis and ophthalmia, and also suppurative diseases of the ear, he has noted splendid results from the internal use of this remedy; however, in such conditions the local applications of peroxide of hydrogen he considers very important. He is confident that many pus-filled cavities should, after evacuation, be cleansed with peroxide of hydrogen, and then by use of sulphide of calcium better results can be obtained than by some of the more common methods.

ON THE TREATMENT OF DIARRHEAS IN INFANCY.

In the *Montreal Medical Journal* for July, 1901, there is an article on this subject by BLACKADER. He believes it is possible that in infancy a relaxed condition of the intestinal tract may be of nervous origin, but a definite instance in which some form of nervous irritation could be regarded as the chief exciting cause of an attack of diarrhea the writer does not remember to have seen. It cannot be too strongly affirmed that the great exciting cause of all the diarrheas of infancy is the presence of some irritant in the intestinal canal, almost invariably of bacterial origin, and more or less poisonous in its systemic effects according to the particular form or forms of bacterial life concerned in its production. It is also to be remembered that at the commencement of the disorder, and for a variable time afterward, the *fons et origo mali* is limited to the contents of the gastrointestinal tract.

With these important facts strongly impressed upon us the indications for treatment are evident; the tract must be cleared of the irritating and poisonous material, and of the pathogenic bacteria which develop in it, as promptly and as thoroughly as possible, and for some days all food which is able to serve as a culture medium for the growth of such germs must be withheld. Partial starvation is much to be preferred to poisoning.

To fulfil the first indication it is desirable to make use of a non-irritating but promptly acting purgative, and if the stomach does not resist its presence no drug acts more promptly and effectually than a full dose of castor oil. As promptness of action is important, this dose should contain no opiate or other sedative that would in any way hinder its action. Another drug fulfilling the same indications is calomel, which has also the advantage of having some slight antiseptic action, and of being easily given and retained by the stomach. In an infant under a year old it may be administered in the form of a powder or triturate—one-tenth of a grain every half-hour for six or eight doses. If combined with sodium bicarbonate its sedative action on the gastric mucous membrane is increased. In older and lustier children the

dose may be a larger one, one-sixth to one-fourth of a grain, repeated every half-hour till one or two grains have been given. After free evacuations have been secured the calomel may be continued for another twenty-four or forty-eight hours in smaller doses at longer intervals.

If the systemic disturbance is severe, in addition to purgatives it is desirable to wash out the colon as thoroughly as practicable with normal saline solution, at a temperature from 95° to 98° F. In carrying out this irrigation the important points to be borne in mind are that the infant's hips must be well raised so as to favor the flow of the solution toward the higher portions of the canal, and to make sure that the flow be slow and gentle the reservoir must not be raised more than two feet above the level of the child. Too great rapidity or force in the inflow of the water will irritate the sensitive mucous membranes and stimulate premature contraction of the muscular wall of the intestine with rejection of its contents before the water has penetrated a sufficient distance. Antiseptics in this solution are undesirable, lest retention of some of the solution take place with subsequent absorption, inducing depressing effects on the circulation.

Such an irrigation, if done effectually once or twice, need not be afterward repeated very frequently. If due care is exercised in the feeding of such an infant, it is not believed that any distinct advantage can be obtained from frequently repeated irrigations.

Although by these measures we may secure the evacuation from the intestinal tract of almost all its contaminated contents, any attempt to administer food of any kind, but especially milk food, to the infant, whose digestive powers have been temporarily paralyzed by the attack, can only result in such food remaining more or less undigested, and acting as a new culture medium for the development of a fresh crop of poisonous bacteria. The necessity of withholding milk food is further emphasized by the consideration that even under normal conditions the digestion of milk appears to be accomplished almost entirely in the small intestine, and not, as in the adult, chiefly in the acid, and therefore to some extent antiseptic, medium of the gastric juice. Especially is this true of cow's milk, the greater portion of which passes in a merely curdled condition from the stomach into the duodenum, where its gastric-acquired acidity is neutralized; should the digestive secretions there be impaired in quality or quantity and digestion proceed slowly, it becomes a culture medium for the development of any pathogenic organisms with which it may be infected. Clinically, it appears to be imperative that milk foods, and especially cow's milk, should be entirely interdicted during an attack, and its use is only to be cautiously resumed in convalescence in such small quantities as can be easily and promptly digested by the infant.

The author's experience corroborates that of a recent writer, who says: "The physician who wishes to do his full duty to the patient must stop the milk diet at once; it matters not whether the diet is breast milk or cow's milk, or whether the cow's milk is sterilized or not sterilized; it matters not whether the stools are frequent or infrequent, neither does the character of the stool cut any figure; as long as there is evidence of intestinal derangement, the milk diet must be discontinued. It is useless to give laxatives and wash out the few bacteria, and then feed milk to the hosts that remain."

For the past few years the author has made it a rule at the onset of an attack of diarrhea to withhold all food from the infant for at least twenty-four hours, permitting only water or a little weak spirits and water. After twenty-four hours a predigested or dextrinized gruel may be given, at first in small quantity, but the amount may be gradually increased; the intervals between the feedings should be not less than two hours. As the case improves a weak, partially predigested meat broth or essence may be added to the dietary; only such food, however, is to be permitted as we may feel certain will be absorbed rapidly and as completely as possible from the mucous membrane of either the stomach or upper portion of the small intestine.

It is surprising to one who remembers the very unsatisfactory results obtained from the older plans of treatment by means of astringents and even antiseptics, to note the rapid improvement that takes place in the majority of cases when these measures are carefully carried out.

At the present the administration of

drugs plays only a secondary part in the treatment of diarrhea, nevertheless we may obtain valuable assistance in many instances from their judicious employment, and for obvious reasons it is not desirable to altogether neglect them. The general consensus of opinion points to one of the preparations of bismuth, either the carbonate or subnitrate, as being of distinct benefit if given in full doses of at least ten grains every two or three hours. If the movements are very frequent or very watery, a small amount of opium may be added in the form of the camphorated tincture of opium. Many cases unfortunately are seen too late for full advantage to be taken of the above measures, and in such the presence of irritating material in the intestinal tract for many days has given rise to more or less inflammatory reaction in the superficial tissues of the intestine, chiefly of the large intestine. In such cases, in addition to the endeavor to remove the irritant by the use of purgatives and the withholding of all fermentable food, distinct benefit has resulted from the use of high irrigations of a one-per-cent solution of tannic acid given twice a day. Tannic acid is of little value when given by the mouth, and by checking the gastric secretions it may do distinct harm, but employed as an irrigation for the colon it has a distinctly antiseptic and astringent action.

In those cases in which the fever rises above 102° F. a tepid bath at a temperature of 90° for five minutes is well borne and often of distinct advantage. The author is afraid of cold rectal injections as a means of lowering temperature, regarding them as a measure liable on occasion to produce very depressing effects. Cold sponging is also of much service, but in the case of infants it is a disturbing process and its action as a systemic tonic and stimulant to elimination is much less decided than that of a general bath at 90°.

All the intestinal antiseptics that we are at present acquainted with give us but a modicum of assistance in this disorder, and their use is not unassociated with a tendency to a depressing action on heart and circulation, an action which we are specially anxious to avoid. Alcohol as a heart stimulant is of much value, and used in moderate quantities it improves digestion, stimulates absorption, and is to some extent a food.

THE TREATMENT OF RHEUMATISM.

DOCK writes an article on this subject in the *Physician and Surgeon* for June, 1901. He thinks that first in the treatment of rheumatism must be considered the matter of rest. However mild the symptoms, the patient should be put to bed and kept from all physical and mental exertion. The room should be well aired and free from draughts. The bed should be narrow enough to permit handling the patient from both sides; the mattress not too soft; the covers warm but not heavy, and not warm enough to overheat the patient. Flannel or flannelette nightclothes should be worn. In case of sweating the skin must be carefully dried; the bedclothes, if wet, replaced by dry ones. Rest for the affected joints is even more important, in some cases, than general rest. It should be secured by well applied bandages, preferably woolen, and in addition a light splint may often be used with advantage. The joint should be put in the position that gives most comfort. Immovable dressings of starch or silicate of sodium may be used, but plaster is usually not as useful as those than can be easily moved.

The bed should be kept as long as there is fever and joint pain, and longer if the heart has been involved. Late in the disease, with a sound heart, it is often useful to allow the patient to be up even with a slight elevation of temperature and some pain, but the effect of this must be carefully observed.

The diet in the febrile stage must be light, consisting largely of milk, with eggs, broths, gruels, and fruit-juices. Water should be given freely, but on account of the danger of dilatation of the stomach carbonated waters should be used sparingly. Tea, coffee, and alcohol should be avoided.

A mild purgative, such as calomel in small doses, should be given in the beginning, and the usual care taken to prevent constipation all through the course.

In avoiding thus far the mention of drugs the writer does not wish to convey the idea that they should not be used, but merely to emphasize the importance

of other measures, for too often we see patients with rheumatism taking medicine well adapted to their condition, but failing to do well because of neglect of rest, diet, etc. Though rheumatism often runs an abortive course, we have no way of knowing in practice when this will take place. It is therefore necessary to treat all cases as if there was danger of a severe course.

We often hear the idea advanced that we have a specific for rheumatism in the salicylates, yet it requires but little experience to discover that the action of salicylates in rheumatism is not so certain and unmistakable as that of quinine in malarial fever, and it is not to be forgotten that many deny all curative action to the salicylates, holding that they merely relieve symptoms. The author, without going into a *résumé* of this subject, the literature of which is very large, continues the discussion with the hope of bringing out the opinions and experiences of others. That salicylates have a marked and valuable action in rheumatism is not doubted. They not only relieve pain and lower temperature, but it seems certain that they affect the morbid process in some way so as to check its severity. This action is not limited to the so-called typical cases of rheumatism, but may be often observed in cases more distinctly septic. Quite recently the author has seen a case in which, after a laparotomy without local suppuration, pleurisy with effusion and arthritis of the shoulder occurred on the right side. Salol in full doses had a prompt effect, precisely like that in rheumatism, but, just as in that, did not prevent a return of the morbid process, this time in the form of phlebitis of the left femoral vein. It is true that some would call such a case rheumatism, but in the author's opinion it is a good example of the possibility, in some instances, of drawing a line between that and septic disease.

Failure to secure good results with the salicylates is often due to insufficient doses. The close relation between the effective therapeutic and the toxic dose would seem to indicate that these drugs act, partly at least, by checking bacterial growth.

Another cause of failure is premature cessation of the administration of the drug. In many reports we find that the course of the disease was not shortened by the treatment, but we also often find that the medication was stopped with the first subsidence of symptoms, a relapse or series of relapses following, and not being pursued as actively as they should have been. It seems clear that in order to get good results we must saturate the body well with the remedy. In general, not less than one hundred and twenty grains of sodium salicylate or a similar preparation should be given within twelve hours after the patient is put under treatment, in the case of a man of average weight. This will be more likely to relieve the pain and other symptoms than a smaller dose, and the total amount given will not be as large as when doses half the size are used. Two or three such doses can be given in the next day or two, but will not often be necessary. After a definite effect has thus been produced, the drug should be continued in doses of from thirty to sixty grains a day, stopping entirely as soon as the temperature and joints permit, but it should be renewed in full doses on the first intimation of a relapse. The sodium salicylate can be combined with advantage with an alkali, such as sodium carbonate, and given in camphor water or any other vehicle. It can be given by the rectum in doses of one-half to one drachm, in water. Salol, or salophen, can be substituted for the sodium salt, the former being easier to take, though it is sometimes objected to on account of its odor, or the black urine, which often alarms the patient, and sometimes, with less reason, the attendant. Still other salicylic compounds are preferred by some, but those mentioned are well tested. It has often been found that the acid itself can be taken in large doses without causing unpleasant symptoms on the part of the stomach. It should be needless to add that such drugs are not to be used in patients with acute nephritis or with old interstitial nephritis. In such cases one must depend on general treatment, with or without alkalies. In chronic or subacute parenchymatous nephritis, salicylates can often be taken in large quantities without increasing the evidences of renal disease, but it should not be prescribed unless the patient and the urine can be carefully watched.

ON THE ACUTE DILATATIONS OF THE HEART MET WITH DURING CHILDHOOD AND ADOLESCENCE.

A. D. BLACKADER tells us in the *Montreal Medical Journal* for July, 1901, that in the treatment of the severer forms of cardiac dilatation absolute rest in the recumbent position is necessary, and should be associated with a diet nourishing but carefully regulated to prevent overdistention of the stomach by flatulence. In some instances it may also be advisable that the amount of liquids ingested should be reduced to a minimum. Strychnine, although possessing a slight action upon the heart muscle, has a more distinct action upon the cardiac nerve centers, and may be employed at the same time as digitalis. In those cases in which we have distinct accentuation of the aortic sound, the exhibition of the nitrites would also appear to be indicated, since by dilating the superficial systemic capillaries they may lighten the work of the left side of the heart. At the onset of the acute symptoms it may be necessary to have resort to the more diffusible stimulants—ether, ammonia, and alcohol.

CAN SUMMER COMPLAINT BE PREVENTED, AND HOW?

FISCHER answers this question in the *International Medical Magazine* for July in these words:

No matter whether the infant is breast-fed or bottle-fed, milk must be stopped—at least twenty-four to forty-eight hours.

A thorough cleansing of the gastrointestinal canal from the mouth to the anus must be insisted upon. For this one prefers mistura rhei et sodii, while another advises castor oil, and others use calomel.

Large quantities of water should be given to quench the thirst and also to add to the volume of liquid in the circulation—owing to the devitalization caused by liquid stools.

To cleanse the colon, an ordinary rectal soft-rubber tube (No. 6-10) is anointed with glycerin or vaselin and gently pressed into the rectum. The rectum is then thoroughly flushed with lukewarm (80 to 100) decinormal salt-water solution. Several quarts should be used. The tube should be gradually pushed through the rectum into the colon. In this manner a double benefit is obtained, namely: First, flushing and thorough cleansing of the parts; secondly, the absorption of salt water is accomplished.

Hypodermoclysis is a simple method of introducing by hypodermic means ordinary sterile salt-water solution. This can be carried out in every household where a fountain syringe exists. It is only necessary to adjust a long, sharp-pointed hypodermic needle (antitoxin needle) to the rubber tubing connected with the syringe. Nothing is so stimulating to an enfeebled heart, nothing will stimulate the blood quicker than this method of salt-water infusion. Hypodermic injections of camphorated oil, 10 to 15 minims per dose, repeated every two or three hours, if necessary, should not be forgotten.

SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS.

JESSETT states in the *Edinburgh Medical Journal* for July, 1901, with respect to the treatment of this affection, that it is obvious that our first object must be to return the displaced organ to its normal position, and then to adopt measures to retain it in position.

As a rule, there is little or no difficulty in reducing the hernial condition. In some instances, however, the prolapsed mass is so swollen and congested that the utmost difficulty may be experienced. In such cases complete rest for a few days and the use of the hip bath will be necessary before reduction can be effected. In other cases peritonitic adhesion may have formed about the misplaced viscera, in which case great care must be taken not to use too great force or too rapid manipulation. So soon as the parts are sufficiently softened, and the bladder and rectum are emptied, one can proceed best to reduce the parts by placing the patient on her side, having the knees and thighs well tucked up, or by placing her in the genupectoral position, which will facilitate the air entering the vagina.

Should any great resistance to the replacement be present, always give an anesthetic, when difficulties in reduction, which may present themselves before, often entirely disappear.

Massage has the repute in many cases of being of great service. Some gynecologists speak favorably of this form of

treatment, as practiced by Schultze, while Thure Brandt has also induced some members of the profession to adopt the practice, as suggested by him. All of those who have used this method seem to be agreed that while it may lessen the frequency of surgical treatment, yet it is tedious, not quickly learned, and the application requires long fingers, a supple hand, muscular activity, dexterity, and inexhaustible patience. In any case this form of treatment can but be of a palliative nature.

Among palliative measures may be mentioned packing the vagina, after reduction, with cotton-wool or marine lint, the cotton-wool being soaked in glycerin or glycerin and ichthyol; the object of this is to support the uterus in position, and by pressure to promote absorption of inflammatory deposits. The tampons should be changed every three or four days; after a time, when the pelvic congestion has been relieved, a well fitting pessary may be inserted. In many cases in which the pelvic floor is intact, these may be worn with advantage, and it must be the aim of the practitioner to adopt that form of pessary which may be the most efficient. In cases in which retroversion exists, the glycerin pessary, the shape of a Hodge with a large pad at the superior end, has been found most efficacious; in others the ring pessary has answered admirably; but for permanent wear the Smith-Hodge or Thomas pessary is considered the best. But in no case where there has been complete procidentia accompanied by cystocele, either together or separately, will any pessary be of use. In such cases, perhaps, should operative interference be contraindicated, the best form of pessary is the india-rubber ball pessary with a stem terminating in a cup.

Surgical treatment should be resorted to in all cases in which procidentia is complete, and is much to be preferred to the use of pessaries, and with this view we must bear in mind what has been the causes of the protrusion. It will be necessary to take these into consideration, and adopt measures for the restoration of the parts, as far as possible, to their normal conditions. The following are the main objects to be attained: (1) The state of the cervix uteri should be carefully examined, and where there is much hypertrophy, amputation of the cervix should be practiced, with a view of lessening the weight of the organ and facilitating its complete reduction. (2) The perineum, vulva, and vaginal walls should be examined, and such operation as appears to be necessary for restoring these points of support should be carried out. (3) The shortening of the ligaments that suspend the uterus. (4) Hysteropexy, either through the vagina or abdomen. (5) Hysterectomy.

When the cervix, as so often is the case, is found to be hypertrophied, it will be always advisable to amputate the hypertrophied part, or some portion of it; it may be that one or both lips, or the entire infravaginal portion, have to be removed. In doing this care should be taken, especially in women who have not reached the menopause, to take precautions to cut out a wedge-shaped piece, allowing thereby the edges of the mucous membrane of the vagina and cervical canal to be united over the cut surfaces, so keeping the uterine canal patent. A sound should be introduced into the bladder, to serve as a guide to the surgeon when removing the hypertrophied cervix, and it must not be forgotten that often the folds of peritoneum are prolonged downward both anteriorly and posteriorly; to avoid wounding these the point of the knife or scissors—the latter preferably—should be always kept directed to the part to be removed.

The next step to be taken is to restore any injury that may exist of the pelvic floor —first, as regards the perineum; secondly, as regards the pudendal aperture; and thirdly, as regards the vaginal walls.

It is obvious that, should the perineum be torn, either partially or completely, this must be repaired, if any hope is entertained of completing a cure; to accomplish this no operation is so successful as that which was first proposed by the late Maurice Collis, of the Meath Hospital, Dublin, and subsequently carried out and perfected by Tait, namely, the flap-splitting operation.

In those cases also in which there has been no direct laceration, the muscular and fascial tissues only being torn, while there is no cicatrix of the skin or mucous membrane, it will be necessary to dissect off a large wedge-shaped piece of the mucous membrane, and by deep sutures bring the torn muscular and fascial tissues intimately in apposition, leaving the sutures in a sufficiently long time to assure perfect union.

The vaginal walls in all extreme cases, accompanied by cystocele or rectocele, or

both, are very much thickened and stretched, and means must be adopted for narrowing the hernial canal. It must not be forgotten, however, that the mere narrowing of this canal, and repairing the perineum, will not in themselves prevent recurrence of the protrusion, which is also due to changes which have taken place in the uterus and its ligaments; but on the other hand, unless the canal is considerably constricted, all methods which might be adopted for fixing up the uterus will be abortive.

TREATMENT OF CHOLERA INFANTUM.

STEWART well says that with all due respect to the forgetful memory of parents, it is usually wise to assume that the leading cause of cholera infantum is some dietetic error. If called early in the disease, we must carefully examine the child's gums to see that they are not at fault, and then make full inquiry if cathartic medicine has been given. If cathartics have not been administered with free results, we can give one-tenth-grain doses of calomel every fifteen minutes until one grain is taken; in one hour after the last dose we may use one or two teaspoonfuls of milk of magnesia or the same amount of tasteless castor oil, to which has been added five to twenty drops of paregoric. Unless we obtain a thorough preliminary flushing from the small and large intestines, undigested and decomposing food and bacteria-infected material will be retained to cause future vomiting and purging and other trouble. It is well at the same time to thoroughly cleanse the lower bowel with a full enema of thin starch water, to which has been added a few drops of carbolic acid, or with normal salt solution. This in many cases will constitute the entire medicinal treatment and cure.

In certain selected cases where there has been purging for some hours but no vomiting, a teaspoonful of equal parts of castor oil and aromatic syrup of rhubarb every two hours, until a full yellow stool is obtained, will answer. Some authorities recommend the administration of magnesium sulphate in five- to ten-grain doses, given with the smallest amount of water possible every one or two hours until the purging ceases and the movements change in color. Experience proves that this method will work better with adults than with young children. In most cases calomel will be found better.

In cases complicated with obstinate nausea and vomiting we may employ:

℞ Hydrargyri chloridi mite, gr. 1-10;
Pulv. ipecac. et opii, gr. 1-10;
Bismuth. subgallat., gr. j.

M. Ft. pulv. No. 1. Sig.: One every one-half to one hour.

If this fails we may use the following:

℞ Bismuthi subgallat., gr. xvj;
Glycerol, acid. carbolic, gtt. xij;
Spiritus chloroformi, ℥j;
Elix. pepsini, q. s. ℥ij.

M. Sig.: One teaspoonful every one-half to two hours.

At the same time apply a mustard plaster (mustard one part, flour four parts, mixed with tepid water and white of egg) over the epigastric region and keep it there as long as it can be borne. Keep the child absolutely quiet, and strictly avoid food, water and liquids. A small piece of ice may be placed in the mouth, or, if the child is too young, wrap the ice in a cloth and permit it to suck it. If vomiting still continues, teaspoonful doses of cold lime-water may be found to relieve; but if this fails wash out the stomach directly, or indirectly by forcing the child to drink a large quantity of hot water to which has been added bicarbonate of soda (20 grains to ½ drachm). Usually this will either be promptly vomited or retained, and it will quiet the patient.

Where purging and vomiting are accompanied by severe pain that cannot be promptly relieved by the measures outlined, we should promptly give a hypodermic injection of morphine and atropine—the dose to be governed by the age of the child. Some make this a routine practice. The writer's opinion has been entirely opposed to the general use of opium, but when any is used it has usually been in the form of Dover's powder. Spirits of chloroform will often relieve the pain if accompanied with other measures outlined. Cloths wrung out of hot water, to which a little turpentine has been added, and applied to the abdomen systematically, give great relief. In the milder cases he makes it an invariable rule to use a spice bag moistened with hot whiskey or dilute alcohol applied to the abdomen and perigastrium, and keep it there until the trouble has completely subsided and convalescence is well established. A spice bag is best made by taking one teaspoonful each of ground cinnamon, cloves, allspice, nutmeg, and one-quarter teaspoonful of brown mustard; mix and quilt it between two layers of thin flannel. Never neglect to

keep a flannel or woolen belly-binder over every child's stomach, summer and winter, as a means of protection from cold. Many a case of diarrhea and cholera infantum can be avoided by this precaution, provided the diet is also watched.

Should these measures fail, or if called upon when the first stage is past, other means must be tried. Bismuth, salol, sulphocarbolate of zinc, betanaphthol, etc., all have their advocates. If the case is a mild one and the subject is an infant or young child, we may try a trituration of 1/100 grain each of calomel and ipecac every one to three hours. Next to this bismuth subnitrate 1 grain, zinc sulphocarbolate 1/2 grain, Dover's powder 1/4 grain, pepsin 1 grain, every two hours in a child two to four years old, serves well; also a continuation of the bismuth-carbolic recipe given before. High starch-water injections and flushings of the bowel, followed by an injection of bismuth and milk of asafetida or a small quantity of chloral or bromide if convulsive tendency is present, will all be found of use. The regular astringent injections have not been found useful.

Fever is usually present after the first stage, and is best met not by the use of antipyretic remedies internally, but by sponging first with tepid water; if this is insufficient, then cold water, next a bath at 70° F. with friction, and then colder if needed, until the child's temperature falls to 100.5° F. Then wrap the patient in a warm blanket and give stimulation as indicated—hypodermics of strychnine or whiskey may be used. Baths must be given cautiously, and only by an experienced nurse or when the physician is present. The writer allows small amounts of cool water at frequent intervals, unless vomiting is present or straining is produced. When extreme vomiting and purging bring on depression bordering on collapse, with weak pulse and cold, clammy skin, hypodermoclysis of normal salt solution (one pint) into the subcutaneous tissues of the back or buttocks is useful, and may be repeated several times daily if needed. Transfusion of normal salt solution may also be used. These measures often work wonders and save many a child bordering on collapse. There is no use at this stage in trying rectal enemas, as they are expelled, and if retained are slowly, if at all, absorbed. Delay stimulation until it is indicated, and then use it freely in the form of strychnine, aromatic spirits of ammonia, or whiskey, in doses suitable to the age. Inhalations of oxygen will sometimes tide the child over the danger point, particularly if associated with hypodermoclysis.—*International Medical Magazine*, July, 1901.

THE MODERN TREATMENT OF GONORRHEA.

DALTON writes on this theme in the *Edinburgh Medical Journal* for July, 1901. In acute anterior gonorrhea he gives the following advice: During the acute stages of gonorrhea there are several methods of treatment. The so-called abortive treatments certainly have something to recommend them, and have very distinct drawbacks. When, on the first or second day, a patient complains of a tickling or burning sensation, with a mucoid secretion showing only epithelial cells and gonococci, but no pus cells, it is permissible to make an effort to abort the disease, and there is reasonable hope of success, though undoubtedly it is a surgeon's duty to make it clear to the patient that the treatment may be very painful, and that it may fail.

The first method to be described is as follows: The patient urinates and remains standing; the urethra is flushed out by means of a soft catheter, No. 6 English, being passed four inches into the urethra, attached to a large syringe, holding two ounces of a warm saturated solution of boracic acid; then a urethroscopic tube is introduced four inches, the obturator withdrawn, and an applicator, provided at the end with a cotton-wool swab, large enough to well separate the urethral walls, and soaked in a solution of protargol, 50 grains to 1 ounce—this is made to protrude beyond the urethra tube, and the tube and applicator gradually withdrawn, the surgeon slowly rotating it from side to side. The tube used should be the largest size that will comfortably pass the meatus. After this operation the patient should keep at rest in the recumbent position; lint, wrung out in hot water, applied to the penis. The bowels should be well opened, and the diet low.

The reaction may be somewhat severe, with a purulent discharge in a few hours. In successful cases the suppuration gradually subsides, the discharge becomes thin and watery, and disappears in four or five days. An astringent injection is usually necessary for a few days, to entirely dry the

mucous membrane. In failures the acute stage develops with, possibly, great severity. By this procedure a substitutive inflammation is set up, and the gonococci are destroyed; the epithelial layer in which they are situated is necrosed by the caustic, and thrown off. It is gradually, in a few days, replaced, the edema of the tissues subsides, and a healthy mucous membrane is left. No doubt the most difficult part of the treatment is the getting of the patient to submit to it, for until the disease is fully developed, with profuse discharge, painful urination, etc., they fondly hope that they have not a real gonorrhea, but have only "strained" themselves; and generally it is useless to try and convince them, by assuring them that gonococci are in numbers in the mucoid discharge, and that this is only the early stage of a disease which they themselves know of as consisting of great pain, and of purulent discharge.

In the more ordinary treatment to be adopted in acute gonorrhea, rest certainly is the most important measure, preferably in the recumbent position; this, unfortunately, is usually difficult for private patients to carry out, but in all cases where it can be the importance should be clearly explained. As rest cannot be taken by many, our next duty is to instruct our patient as to the worst forms of exercise. He should be told never to walk if he can ride, to sit rather than stand, and to absolutely avoid horseback riding, cycling, dancing, and rowing. Support of the testicles is important, with a neatly fitting suspensory bandage. Diet is of the utmost importance, plain nourishing food being required. It is a good plan, if possible, to give patients a written list of articles to be avoided in both eating and drinking. All highly seasoned dishes, and meats, fish, etc., recooked; curries, salads, soups, asparagus, tomatoes, pastry, sauces, pickles, mustard, and pepper; alcoholic liquors, ginger-beer or ale, home-made lemonade—should all be prohibited. With regard to aerated waters, patients are usually recommended to partake of them freely. It is certainly doubtful if this should be permitted, as all carbonated drinks are genito-urinary irritants; in moderation they probably do little harm, but in the large quantities they are frequently drunk they must, to a considerable extent, irritate the urethra. The dressing of the penis should be inquired into, rubber bags entirely condemned, and any arrangement that presses on the penis, or allows that organ to be in constant contact with the pus oozing from the meatus, should not be allowed.

Soaking the penis in hot boracic baths is useful and comforting to the patient. The bowels must be kept freely open; a cathartic pill every third day during the acute stage is advisable. Saline cathartics and the natural waters are to be avoided, as the magnesium sulphate they contain irritates the urethra as it passes off in the urine.

The urine should be kept alkaline and bland by potassium bicarbonate and acetate, combined with tincture of hyoscyamus. For the relief of chordee, etc., the hard bed and towel with a knot are familiar to all. The following injection will be found very useful also:

> Liq. morph. hydrochlor., 15 minims;
> Cocaine hydrochlor., ½ grain;
> Aq., ad 2 drachms.
> M.

Suppositories, bromides, and chloral, with phenacetine and antipyrin, may be used.

In the more chronic forms of gonorrhea it is always distinctly advisable to make a thorough examination with the urethroscope; there are many patterns of the instrument, but Schall's, with an inflating apparatus, meets all requirements. If the urethra is previously injected with 20 mm. of a five-per-cent cocaine solution, this procedure is quite painless. It is advisable only to examine the anterior urethra, as, except in skilled hands, examination of the posterior urethra may be attended with unpleasant consequences. The areas infected are generally the deeper portions of the urethra—the bulbo-membranous and prostatic—quite the commonest probably being a membrano-prostatic catarrh. It is self-evident that in this condition hand injections are futile, for the compressor urethræ muscle effectually prevents their ever reaching the diseased areas, and these are more readily treated by posterior irrigation than by any other method.

The technique of the operation in these cases is exactly the same as that described for the acute, with the exception that only a small quantity (one-fifth) of the solution is allowed to run in and out of the anterior urethra. The nozzle is then pressed firmly down, stop-cock fully opened, and the posterior urethra flushed until the patient's bladder is distended, when he is allowed to void the contents, after which more solution

is allowed to run in. This is repeated until the receiver is empty. Daily irrigations are very much the most successful. The other methods of treating chronic urethritis are: By direct application of strong solutions to the diseased areas, through the cannula of the urethroscope. This method is particularly applicable to those cases where the disease is located, as in granular patches and the like.

The instillation method is second only to irrigation, and may be employed in membrano-prostatic catarrh, prererably in conjunction with a preliminary irrigation, or alone. The Guyon cathetic syringe is usually advocated for instillations, but a small silver tube with a short terminal curve is preferred, screwed on to a hypodermic syringe, because with practice it is as easy, if not easier, and quite as painless to pass, with the advantage of knowing exactly when the point is through the compressor muscle and in the posterior urethra, which is not always easy to determine with a soft flexible tube. The instillations may be performed every second, third, or fourth day, according to the strength of the solution used, immediately after an irrigation.

The passage of medium-sized metal sounds is a useful adjunct to other treatment, and the psychrophore is still more useful, in that the surface can be kept cold by the water running through it for a longer time.

Neither of these methods will probably effect a cure alone. Antrophores are particularly useful in the treatment of those patients who are unable to attend regularly for the purpose of irrigation or instillation, as they may be used by the patients themselves, and do not necessitate the aid of the surgeon. They consist of small coiled springs, coated with an insoluble substance, outside which is a soluble mass, with which the various drugs are incorporated. They are made in two forms—urethral and prostatic. The former are about six inches long, the latter about nine, and the selection depends on the site of the disease. They are introduced into the urethra, preferably on going to bed, and are left in fifteen minutes. The stem is then withdrawn, most of the drug mass remaining in the passage all night.

The introduction of flexible bougies, coated with ointment, is sometimes useful, and can be used by the patients themselves. No. 10 English is a useful size, and should be left in fifteen minutes, on going to bed, as with antrophores.

The drugs in use for the treatment of gonorrhea, both acute and chronic, are many and various, but in practice it will usually be found far better to limit oneself to the use of a few, and become perfectly familiar with the action of these.

Since the introduction of the irrigation treatment, permanganate of potash has been principally advocated. But in the author's experience one of the new silver salts is by far the most useful drug we have at our command. In the acute stages, irrigation with one of these has given much better results than either permanganate of potash or boracic acid. It should be commenced with the strength of 1-to-400; if irrigations are daily, by the fifth day 1-to-200 will be reached. This strength will usually be found sufficient, although sometimes it is advisable to increase 1-in-100. These irrigations, as far as the drug is concerned, are painless, and this fact, combined with the penetrating power and bactericidal properties of these salts, is greatly in their favor, and give them an immense advantage over the painful nitrate of silver.

As the disease subsides, weaker solutions are gradually substituted, and the treatment finishes with a few irrigations of ichthyol, two-per-cent. This drug seems to have a certain sedative and tonic effect on the urethra. If the irrigations do not effect a complete cure, hand injections with the ordinary urethral syringe may be used three to four times daily, and retained in the urethra three to ten minutes, or hollow cacao butter bougies, three inches long, with half-grain doses of protargol in each, may be used every night. Occasionally astringent injections are required in the finishing process when there is a thin glycerin-like discharge, a useful one being:

Zinc sulph., ½ to 3 grains;
Plumbi subacet., ½ to 3 grains;
Tr. catechu, 10 to 30 minims;
Glycerin, ½ to 1 drachm;
Aq., ad 1 ounce.
M. Ft. injectio.

Of course, both these injections and bougies are of use only in cases where the disease is limited to the anterior urethra; where the posterior urethra is also invaded, continued posterior irrigation is necessary, or antrophores may be used.

In chronic cases it is as well to begin, for the first week, with protargol irrigations,

1-in-200 to 1-in-100; then to change to a more astringent injection, an exceptionally useful one being:

Zinc sulph., 30 grains;
Pulv. alum, 30 grains;
Aq., ad 1 ounce.
M.

This being added to the receiver, full of hot water, the posterior urethra is then irrigated, as before described.

In instillations protargol again may be said to head the list; 5 to 20 minims of a five- to twenty-per-cent solution is instilled into the prostatic urethra with the instillator. Even the strong solution will cause little or no pain. For the next drug—nitrate of silver—this cannot be claimed; and though it is still preferred by some, the pain, tenesmus, and bleeding are greatly objected to by the patient. If this drug should be selected, and possibly there are exceptional cases which do better under it, one- to five-per-cent solution should be used; a few minims of a five-per-cent solution of cocaine being instilled a few minutes after will neutralize the excess of the nitrate, and to a certain extent relieve the discomfort.

Sulphate of copper, iodine, and carbolic acid have been advocated by some, but reports are conflicting; argentamin and argonin are favorably reported on.

With the antrophores, the drugs most in use are thallin sulphate, 5-per-cent; protargol, 2 1/2-per-cent for the anterior, and 10-per-cent for the prostatic, uretha; and zinc sulphate, 0.5-per-cent. These are the only ones found to be of much benefit.

An ointment found to give distinctly good results is one composed of:

Acid carbolic, 10 grains;
Iodin. pur., 5 grains;
Ol. olivæ, ½ drachm;
Lanolin, ad 1 ounce.

THE EXPERIENCE OF FORTY-TWO CASES OF GOITRE TREATED BY OPERATION.

In the *Edinburgh Medical Journal* for July, 1901, SHEILD reminds us:

1. That medical treatment should not be neglected in cases of goitre.

2. That cases of goitre which tend progressively to increase should always be submitted to operation before they grow to a huge size, and before their deep connections become complicated.

3. That the operation of removal of one lobe and the isthmus is practically always followed by atrophy of the corresponding lobe. The operation is free from special risk, if done properly, and with the assistance of an experienced anesthetist.

4. That large, old adherent goitres will still remain difficult and dangerous to remove, and that it is the duty of every practitioner to urge this upon his patients, and submit them to operation while removal is yet comparatively safe and easy.

TREATMENT OF THE FEBRILE STAGE OF GASTROINTESTINAL DISORDERS IN CHILDREN.

HOLLOPETER writes in the *International Medical Magazine* for July on this important subject. He expresses the view that we must medicate with such drugs as will act as germicides and reduce the fever of fermentation to the lowest point. This is one of the difficulties of pediatric practice. Bismuth is an antiferment, but it is very questionable whether it reaches the whole mechanism. Salol theoretically is indicated, but we cannot exhibit it in sufficiently large doses for it to reach and kill all bacteria, since in doing so we would poison the tissues. Pathologically, we cannot find the lesion after death in those dying from acute gastric catarrh. The nerve influences are very great, as undoubtedly we have a true paralysis. The successful management of the feverish stage in young children can be accomplished by hydrotherapy, by intestinal antiseptics, and by rest. The first step in the management of these cases resolves itself into something like this formula: Given a case of acute febrile disturbance of gastrointestinal origin, our first step would be to empty the stomach, if it has not already been accomplished, and then to give a slight enema. This, in young children, from two to six years, is accomplished by the use of glycerin and water: about one teaspoonful of glycerin to a tablespoonful of warm water, which generally accomplishes the purpose in the most satisfactory way. After that may be used a high enema of one quart of tepid water and one tablespoonful of bicarbonate of soda. This is generally given by gravity. The child's buttocks are elevated to at least four inches higher than the shoulders. It is immaterial whether it is on the right or left side or on the back, but by means of a fountain syringe holding two quarts and with the bag of the syringe one to two feet above the buttocks, the con-

tents are slowly allowed to enter by gravity into the intestinal canal. The writer has a decided preference for this alkaline irrigation. Apparently it is not as widely known as it should be, but has proved a very satisfactory method of emptying out any scybalous or fermentative masses that may be found high up in the intestinal tube. The first impact of water of course dilates the rectum, straightens out the sigmoid flexure, and generally induces peristalsis, and by the time that one-half of the contents of the bag has been used we will have induced a peristaltic wave that will serve to dislodge any foreign fermenting masses that may have been feeding the fever.

This alkaline irrigation is valuable from another standpoint. Soda solution to the inflamed and acid secretion of the intestinal mucous membrane neutralizes the pathologic changes going on in the tissues of the young child. In addition to that it acts as a sedative, cooling and quieting down the tesesmus which invariably follows an acid discharge or fermentative diarrhea.

After the bowels have been thoroughly irrigated in this way the author follows up with broken doses of calomel, half a grain with soda and sugar of milk, until the characteristic stool is found, and this is then supplemented by a dose of castor oil, and the method by which he administers this to children six years of age is to put one to two drachms of castor oil in a teacup, pour it full of boiling water, add a few drops of extract of vanilla to flavor it, and disguise the odor and taste of the oil, and when it is cool enough there appears a large floating island of oil on top, which is readily and gladly taken by the child.

Bathing of children suffering from this condition requires care. Children who are suffering from excessive peristalsis should not be handled unduly. After the initial bath at 95°, lasting for at least five or eight minutes, and cooled down until the temperature reaches 90°, place them in a comfortable bed with a light sheet and a counterpane over them, and for the next twenty-four hours let them be as little disturbed as possible. Temperature changes from that initial bath can be controlled nicely by the ice-bag; an ice-bag to the child's head, and an ice-bag or a bottle under each arm and under each knee, constitute a very convenient and efficient method of combating temperature changes in children suffering from active diarrhea without handling. The evening sponge bath of alcohol is refreshing and agreeable. The medication after the first twenty-four hours of calomel, followed by the oil, would be a prescription of this kind: Bismuth subnitrate, 2 grains; salol, 1/2 grain; aromatic powder, 1/2 grain; sugar of milk, 1 grain. This may be given dry on the tongue every two hours or with every movement.

Having thoroughly sterilized the gastro-intestinal tract and instituted this method of treatment, the next step to be observed will be the feeding. The most satisfactory nutrition in the presence of acute intestinal trouble will be the complete withdrawal of solids and every form of milk food. Albumen-water ranks first in importance. This is administered preferably cold in young children, in the proportion of the white of an egg to a pint of water containing one ounce of cracked ice. This shaken very thoroughly renders admissible the albumen, distributing it equally throughout the bulk of water. It may be administered in quantities of from two to four ounces every two to four hours, according to the age and condition of the child. Albumen-water itself is generally taken by children at night without any objection, but in the daytime they generally have some criticism to make as to its taste by reason of its unattractive appearance, and in this case some harmless flavor may be resorted to, such as vanilla or the slice of an orange or lemon floating in it, which makes it very suggestive of lemonade to the young and thirsty child, and generally induces them to greedily partake of it.

Another form of nutrition, to tide over the acute attack, is toast-water or gum-water, the preparation of both of which is well known to the profession, but unfortunately too frequently neglected in the little details in the management of a sick child. It has been the author's habit never to return to any form of solid food or meat juice until the fever has remained normal for at least four or five days. It has been a matter of interest to notice the frequent development of fever by the too early commencement of the old-fashioned method of administering beef juice and beef tea. Beef tea, as is often seen in typhoid fever, has been the medium of the recultivation of intestinal bacteria and the reestablishment of the acute symptoms, generally in a most violent form.

If, after forty-eight hours of the treatment by the bismuth and salol mixture, we have still considerable peristalsis, a very satisfactory procedure is the employment of one half to one ounce of starch, well boiled and of the consistency of good cream, by having it carefully placed in the rectum, where it acts as a poultice and a local sedative to the irritated and susceptible membrane of the rectum. In children who have been greatly debilitated, at the end of one week, and when it is found that some form of stimulation is necessary, the writer commences with the exhibition of a little iced brandy, but usually the stimulation found in the gum-water and toast-water is sufficient to tide over all the depressing influences of an attack. In children who have been debilitated by frequent intestinal disturbances and whose condition has been made alarming by the acute exacerbations, digestion and assimilation are found to be almost lost, and not only the digestive powers, but the functional activity of the kidneys, have been almost destroyed. It is exceedingly important to notice that the commencement of convalescence is generally indicated by a greater activity of the kidneys. When the kidneys have lost their power of response and the child's digestive condition has become alarming, the writer has borrowed the idea so frequently acted upon by gynecologic surgeons, and that is resorting to hypodermoclysis. The introduction of the normal saline solution under the skin often starts up the functional activity of the whole organisms of the exhausted young child. This generally furnishes the tissues with sufficient pabulum to start the cells into activity once more, and is frequently the commencement of the return of the child to its usual health. Not until the digestion has been regained and there has been a quieting down of the peristaltic wave can we commence to increase the nourishment.

In the management of the febrile stage of gastrointestinal disorders of young children the key-note is the absolute cleansing of the gastrointestinal canal of all bacteria and material that generates bacteria, the administration of sterile food, the combating of tissue waste, absolute quietude, and the rigorous attention to a strict adherence in the management of the slight details of this condition.

A NEW METHOD OF CONTROLLING MORPHINE SICKNESS, AND THE NAUSEA INCIDENT TO CHLOROFORM ANESTHESIA.

The *Kansas City Medical Record* for July, 1901, has in it an article by KUDER in which he tells us that he has recently made a test of chloretone as a gastric sedative in twenty-five cases in which it was necessary to administer morphine, either internally or hypodermically, with results that were indeed surprising. Ten grains of the drug, in five-grain tablets, were given directly after the morphine had been taken. Not one of these twenty-five patients, either old or young, experienced the least gastric disturbance—on the contrary, they expressed themselves as feeling in excellent condition.

Encouraged by the results of this experiment he essayed to make a further trial of chloretone as a preventive of the nausea so often occurring during or after general anesthesia. Accordingly, in a series of seven cases, three tablets (fifteen grains) of chloretone were given before administering the anesthetic. Not one of these patients vomited during or after the inhalation of the chloroform, which was the anesthetic chosen. They were slightly drowsy, but evidenced no gastric disturbance. In one case in which it was necessary to give chloroform directly after the patient had eaten a full meal, chloretone was used as a preventive of vomiting with perfect success.

This experience leads Dr. Kuder to feel that in this rôle alone chloretone will prove a blessing to the patient and a godsend to the operator, and that the profession may have the same happy results.

TREATMENT OF FURUNCULOSIS OF THE EXTERNAL AUDITORY CANAL.

In the *Glasgow Medical Journal* for July, 1901, CONNAL states that he believes in early incision of the furuncle, and the application of an ointment which Dr. Barr recommends, and which experience has shown to be of value: Iodoform 4 grains, menthol 2 grains, vaselin 1 drachm, smeared on cotton plugs, and introduced into the canal of the ear twice or thrice daily. Gruber's gelatin bougies containing morphine are also of service, more especially in the earlier part of the illness, or if the patient will not allow the boil to be incised.

Ointments and instillations applied locally

are numerous, but the main purpose of them all depends on their antiseptic properties. Poultices generally do harm by producing a sodden condition of the tissues, which favors microbic proliferation.

If, however, the furuncle is not a primary condition, but occurs associated with some other lesion—suppurative middle-ear mischief, eczema of the canal, or plugs of cerumen—these conditions would demand appropriate treatment. In furuncle associated with purulent otitis media, one is occasionally surprised to note how quickly the middle-ear discharge dries up after the inflammatory condition in the outer canal has been remedied.

The constitutional treatment of this affection is of prime importance, and more especially where there is a tendency for the boils to recur in crops. In such cases the dietary must be carefully regulated—starchy and sugary foods should be withdrawn. Each individual patient should be treated according to his requirements. Tonics and aperients may be necessary. The aim in view should be a plain, wholesome, nourishing diet and plenty of outdoor exercise. In emphasizing the necessity for supervising the dietary in this complaint Sir Wm. Dalby (Diseases of the Ear) relates the case of a strong, athletic young man, who for three years had never been one week quite free from a boil in either year. In this instance the patient had been in the habit of taking a pint of beer daily. This was withdrawn and a little claret substituted, with the happiest result.

In discussing the constitutional treatment of furuncle, the tendency of bromides and iodides to produce a pustular eruption must be borne in mind. Alum and nitrate of silver applied locally are also said to favor their development.

This is the type of case usually met with; but there is another class where, in addition to the extreme pain, dulness of hearing, and other symptoms we have already mentioned, there is marked swelling over the mastoid, which is confusing, and leads to errors in diagnosis. The error is pardonable. The severity of pain in the ear and head, the dulness of hearing, the tinnitus, the giddiness, the constitutional disturbance, feverishness, with the presence of a scanty discharge from the ear and swelling over the mastoid, give a clinical picture which is alarming, and strongly suggestive of mastoid mischief. Apart from a local examination of the external auditory canal, it is hardly conceivable that such local and constitutional disturbance can arise from a boil in the outer ear.

CASES OF ABDOMINAL INJURY WITH RUPTURE OF THE VISCERA.

KELLOCK *(Lancet,* March 30, 1901) reported to the Medical Society of London three cases of abdominal injury with rupture of the viscera.

Two of the patients who sustained laceration of the spleen were injured by the wheels of vehicles moving at a fairly slow pace. The other patient fell about fifteen feet, and sustained rupture of the kidney.

The first case was that of a man forty years old. The abdomen was opened in the left linea semilunaris. Blood was found in the peritoneal cavity, and the spleen was found to be extensively lacerated. On attempting to bring it forward free hemorrhage took place, which was controlled by seizing the pedicle and ligaturing it; a small piece of the spleen had been completely torn away and was removed separately. The patient rallied well after the operation, but on the second day symptoms of intestinal obstruction appeared. This did not yield to treatment, and death occurred on the fifth day. At the post-mortem examination the ligature on the splenic vessels was found to be firm. There was superficial bruising of many of the viscera and complete obstruction of the small intestine a few inches above the cæcum, owing to the bruising of this structure.

The second case was that of a man thirty-two years of age, who had fallen fifteen feet. He struck his left loin against the edge of a plank. There were two indications for operation: the amount of blood the patient was losing in the urine, and the constant desire of the patient to defecate. Kellock suspected injury to the intestine. The right kidney was examined from an opening in front, and then the left kidney was exposed from the loin. The lower third of the kidney had been completely torn from the upper two-thirds, the rent opening the pelvis. The pedicle was ligatured and both pieces of the organ were removed, the wound being closed round a drainage tube passed to the bottom of the cavity. The blood in the urine ceased at once. The patient made an uneventful recovery.

The third case was a woman, fifty-five years old, from whom a quantity of blood escaped when the abdomen was opened. The spleen was found to be much lacerated and torn away from its vessels; ligature of these and removal of the organ did not stop the hemorrhage, and on further examination a rent of the liver, almost severing the left lobe from the right, was found. This was rapidly plugged with gauze, but the patient did not long survive the operation.

THERAPEUTIC USE OF THE X-RAYS.

TOWLE (*Boston Medical and Surgical Journal,* April 11, 1901) has made an exhaustive review of the literature of the therapeutic use of the *x*-rays.

In the treatment of certain diseases due to bacteria, the only positive result from the use of the *x*-rays which he has seen was that obtained by Rieder. Rieder used different colored media, such as agar, gelatin, and serum, spread on glass plates. Over these was placed a sheet of lead in which was a circular aperture. The whole was so arranged that a portion of the culture was freely exposed to the *x*-rays through the aperture, the rest being protected by the lead. Ordinary light was excluded by pasting black paper over the hole. Cultures of cholera bacilli, anthrax, diphtheria, and bacterium coli were exposed from one to three hours to the *x*-rays from a very powerful machine. The vacuum tube was distant twelve inches. Under the protecting lead the bacteria developed freely; under the aperture no colonies or only a few developed. The *x*-rays were also effective in stopping the growth of colonies, and in this respect were more effective than sunlight. There was no change induced in the gelatin. Other investigators have secured the same results.

Freund was the pioneer in the application of the rays to therapeutic uses. His first case was one of nevus pigmentosus piliferosus of the back. The results were so encouraging that he was led to institute further experiments, both alone and with Schiff, in the removal of hair, and in other diseases, notably lupus, until now they have published more cases than any other experimenters. Other investigators have noticed the effect of the rays on the hair. In some of the cases the hair after removal showed signs of returning. Kaposi predicted that in such cases, as soon as the paresis of the vessels had worn off, the tissues would regain their tone and the hair would return.

A case will show the method used by Schiff and Freund in removing hair. A woman, for the removal of hair on the upper lip and chin, was given seventeen sittings of ten minutes each from January 4 to 31—tube distant 15 to 20 centimeters; volts, 10 to 11½; amperes, 1½ to 2; intensity medium, 30 centimeters. January 29, most of the hair snow-white, skin with a dark pigmentation. January 30, hair falling. February 3, skin smooth, bald; no trace of brown color or erythema. March 20, about twenty hairs returned. March 20 and 21, two sittings of ten minutes each. March 23, hair white; fell spontaneously. April 23, about five hairs to be seen on the chin. April 23 and 24, two sittings. April 25, hair fell out; no return at the end of May.

The chief therapeutic use of the *x*-rays, however, has been in the treatment of lupus vulgaris.

The reaction of the lupus tissue to the *x*-rays is considered by Freund and Schiff to be characteristic. The visible lupus nodules grow gradually dark-red and turgid. Then there appear, on places apparently normal, dark spots, which gradually assume the characteristics of lupus nodules. Later the nodules fall out, leaving a hole the size of a pin's head, which looks as if it were made by a curette. In the place of the nodules are left fine subcutaneous scars. The intervening skin is white and smooth. Himmel concludes that the *x*-rays exert a greater and deeper action upon the lupus tissue than upon the healthy skin.

From a study of the literature on the subject, Towle believes that the real nature of the *x*-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; that the treatment is not without danger unless great care is used; that the effects of the *x*-rays remain for a long time, and recovery is very slow; that whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the *x*-rays; that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; that the *x*-rays are not proved to have any bactericidal power; that the therapeutic effect of

the rays is probably due to the inflammation excited; that hair can be removed by their use, and that lupus and several other diseases can be healed over; that in a few reported cases it may be fairly assumed that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; that the effect of exposure to the rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; and that while the permanency of the cures effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

OBLIQUE SUBTROCHANTERIC OSTEOTOMY FOR LENGTHENING THE FEMUR AND CORRECTING DEFORMITY OF FLEXION RESULTING FROM HIP-JOINT DISEASE.

ABBOTT *(Boston Medical and Surgical Journal,* April 11, 1901) notes that although osteotomy for the correction of flexion in hip disease has been performed in various ways for nearly fifty years, it is only recently that attempts have been made to combine lengthening of the bone with straightening of the limb.

Hoffa, Lauenstein, Landeve, König, and other German savants, during the past year have successfully performed the oblique subtrochanteric osteotomy with lengthening of the femur, and strongly recommend it. They divide all the contractured muscles and fasciæ subcutaneously, and the patient is placed on the side with a cushion between the thighs. The femur is laid bare by an incision some three inches long, the center of which is from 2½ to 4 inches below the trochanter major. The skin and soft tissues are held to one side by retractors, and the osteotome is placed firmly against the bone, and driven at an angle varying from 30 to 45 degrees upward and inward through the shaft of the femur until only a thin bridge of the inner compact tissue remains, when the division is completed by fracture. The leg is then forcibly extended by means of a screw, drawing the smooth-cut surfaces by each other until the desired length is obtained. The wound is dressed without closing, and a plaster-of-Paris spica is placed on the leg, with an opening over the incision, allowing easy access to it. The leg remains in this position five weeks; then the plaster is removed, and massage and gymnastics employed. The patient meanwhile moves about with the aid of crutches, the full weight not being borne on the fracture before the twelfth week.

Abbott, in operating on a patient where flexion of 45 degrees existed and actual shortening of the bone amounted to 3½ inches, followed what he believed to be a simpler method. The patient was prepared in the usual manner. The osteotome, of the same width as the bone, entered through the skin and underlying tissues upon the femur about four inches below the upper border of the trochanter major, where it was firmly held at an angle of 30 degrees. Then it was driven through the bone as far as the inner compact tissue, when it was exchanged for a narrow one, and the division continued well into this, after which it was withdrawn and the section completed by fracture. The leg was placed in the corrected position, and dressing was applied. A temporary splint was bandaged to the side to prevent accident during transportation from the operating-room to the ward. After the patient was in bed a Buck's extension was applied to the leg, with side plasters reaching to the fracture. A side splint which extended from the axilla to the foot was loosely bandaged to the body, and weights were placed on the end of the extension and gradually increased. The muscles relaxed in thirty-six hours, when the length and position were regulated and the splint firmly applied, retaining the leg in the corrected position. At the end of the eighth week all apparatus was removed, and the patient allowed to move around in bed. He was given crutches in the tenth week, and allowed to exercise freely. The femur was lengthened 1½ inches, and the flexion was completely corrected. The adhesions were completely broken up by the operation, allowing movement of 15 degrees. Union was firm at the end of the eighth week, and the patient soon walked easily with the heel of his shoe raised three-fourths of an inch on the inside.

Abbott believes that a radiograph should be made, that the width of the osteotome should be regulated by the size of the bone, and that the angle at which the instrument is to be held must be governed by the size of the femur. The amount of weight must be gradually increased until results are obtained, when it can be lessened and held by the side splints.

COMA FROM THE APPLICATION OF CARBOLIC COMPRESSES TO THE UNBROKEN SKIN.

DOUGLAS-CRAWFORD *(Lancet,* April 6, 1901) fears that the dependence of coma on carbolic acid applications may be overlooked. He records the case of a girl four years old, on whom it was proposed to perform Macewen's osteotomy on both legs. Compresses of carbolic lotion, 1:40, were applied to both legs. Four hours later the compresses were removed, the child was given a bath, and her legs were scrubbed with oil of turpentine. About an hour afterward compresses of the same lotion were applied. About forty minutes later the child was found in an unnaturally deep sleep which continued for two hours, when she was in a state of collapse and coma. Her skin was ghastly pale, cold, and clammy. There was marked muscular relaxation, the limbs dropping quite limp when lifted. The knee-jerks were absent. On touching the cornea there was a very slight response of the lids. The pupils were normal in size or slightly dilated, equal, and reacted well to light. The lids were not quite closed and were subject to a slight spasmodic winking movement. In the rectum 98.6° F. was registered. The pulse ranged from 170 to 180, and was small, but countable at the wrist for a time. The heart sounds were clear and nothing abnormal was noted. The position of the apex-beat was not definitely localized. The respirations numbered 36 per minute and were deep and regular, but there was no stertor. Henderson, the physician in charge of the case, was at first puzzled by these symptoms, until it occurred to him that the carbolic dressings might be the cause. They were at once removed and the legs of the child were well washed. Brandy was administered, hot bottles applied, and a dose of magnesium sulphate and carbonate with peppermint given. In over an hour she vomited, and gradually became better during the next few days, during which time the urine continued to show a gradually diminishing excretion of carbolic acid.

Henderson, in commenting on the case, believes that the absorption took place chiefly from the second compress, and that the cleansing by oil of turpentine assisted the process partly by cleaning the pores of skin from fatty matter and probably also by acting as a solvent and vehicle for the carbolic poison. The skin of both legs was absolutely unbroken, and when the compresses were removed there was no sign of irritation such as is frequently seen from the use of stronger lotions than 1:20.

Three similar cases have been found in literature, and in these three the solution was as strong as 1:20; but in all instances the chief symptoms were alike—pallor, and drowsiness (not always observed) leading to coma, with deep or rapid stertorous breathing and an alarmingly rapid and feeble pulse. Profuse perspiration and vomiting are always present. The reflexes are greatly dulled or abolished, with the somewhat remarkable exception of the pupil reaction to light, which remains, although the cornea is quite insensitive. Prognosis is good, as in all the cases spoken of here recovery ensued in spite of the alarming symptoms.

Henderson in addition to stimulants and warmth would, in a case of prolonged coma from carbolic compresses, be inclined to try intravenous injection of sterilized sulphate of soda solution. Such treatment had a remarkable restorative effect in a case of carbolic poisoning.

A NEW TREATMENT FOR INOPERABLE CANCER OF THE BREAST.

LEAF *(Edinburgh Medical Journal,* May, 1901) bases his new treatment for inoperable cancer of the breast on the principle of preventing the carcinomatous cells, or the agent which causes their multiplication, from passing along the lymphatics and invading the internal organs. There are two chief groups of cases which are suited to this treatment.

In the first there is, it may be imagined, an ulcerating scirrhus adherent to the pectoral muscle; the axillary glands are much enlarged, matted together, and some, perhaps, firmly bound down to the thoracic wall.

The second group includes those cases where, after one or more operations, the growth has recurred in the pectoral muscle, in the lymphatic glands, or in both.

In both groups the surgeon does not recommend any radical operation, and it is to be supposed that the growth has not traveled along the mediastinal lymphatics to any extent, and that the internal organs are not affected. The carcinomatous cells will go on multiplying in such a condition of affairs, and will pass along the lymphatic vessels and lymphatic glands, and finally invade internal organs. Whatever the cause

of the excessive multiplication of these cells, all attempts that have been made to destroy them or prevent their development have failed.

If the cells can only develop in the cancer juice, then if the juice can be prevented from passing along the lymphatics the cells, even if they do enter these vessels, must finally die from lack of nutriment. But if the juice is not needed in the development of the cell, the cell itself causing multiplication of the neighboring cells, or one of the protozoa manufacturing a fluid in which the cancer cell multiplies, then, not knowing how to destroy what for want of a better term may be called the noxious agent or agents, and not even knowing what its nature is, but being aware that epithelial cells and cancer juice are present, and recognizing that either or both of these may be the cause sought for, measures should be taken to prevent both of them from passing along the lymphatics, by keeping them as near the surface as possible. Leaf accomplishes this by suction.

He has devised a large vulcanite shield, made to fit accurately on the skin around the scirrhus or the recurrent nodules, as the case may be. At the bottom of the shield is fitted a broad india-rubber inflatable tube exactly similar to that in an ether inhaler. The shield at the surface has a small tap to which can be adjusted an ordinary air-pump, by means of which the air in the chamber can be pumped out. To obtain an accurate fit, which is essential, a mold of the chest can be taken by wire which is bent on the chest to the exact shape.

Absolute rest for the arm of the affected side is insisted upon. After all operations for scirrhus, even when the operation has been performed for a growth in the earliest possible stage, it is necessary that the patient should keep the arm in a sling, absolutely at rest, for at least two years afterward. Leaf argues that if there are in the lymph agents which cause cell multiplication, it is quite clear that these agents must be carried further and further inward with every movement. He says that even after the most radical operations patients should be treated as though all the noxious agents causing cell multiplication had not been got rid of, until such time as this is proved not to be the case.

[NOTE.—Some cases are quoted which apparently show the benefit to be derived from this form of treatment, but which are not convincing to the practical surgeon.—EDITOR.]

TREATMENT OF ENTEROPTOSIS BY SUSPENSION OF VISCERA.

BLECHER (quoted in *Edinburgh Medical Journal,* May, 1901) describes the clinical features in enteroptosis, or Glénard's disease, and records a series of cases operated upon by Bier. Because it does not interfere with its normal movements, as regards prolapse of the stomach, Bier prefers, instead of stitching the organ to the anterior abdominal wall, to shorten the gastrohepatic omentum by folding it horizontally and fixing the folds by sutures. This procedure was followed by complete recovery in all four of his cases.

A similar operation was performed in a case of ptosis of the colon. When the abdomen of an adult male who suffered from persistent pains in the left side of the belly, and also from constipation, was opened, the left half of the transverse colon was found to have descended, in the form of a loop, nearly to the level of the symphysis pubis. The mesocolon was shortened by folding it horizontally and stitching the folds together. The patient recovered completely.

ABSCESS OF THE BRAIN CONSEQUENT UPON DISEASE OF THE MIDDLE EAR.

HAMMERSCHLAG (quoted in *Edinburgh Medical Journal,* May, 1901) has made an interesting and valuable summary of the symptoms and signs of brain abscess, arising in connection with middle-ear suppuration. The author has based his conclusions upon those cases in which the brain abscess was diagnosed during life, and in which an operation was performed for its relief. The number of cases examined was 195.

Cerebral abscess of otitic origin occurs most frequently in early middle life. As regards sex, it was found that out of 175 cases, in which sex was reported, 122 were males and 53 females.

In 181 cases of temporosphenoidal abscess, 85 occurred in the right hemisphere of the brain, and 96 in the other hemisphere.

Cerebral abscess complicated chronic suppuration 149 times, acute suppuration 37 times, and subacute suppuration in one case.

In 78 of the cases which occurred in a chronic suppuration there was a fatal result, while 23, or 62 per cent, proved fatal, arising in the course of an acute suppuration.

The temperature was noted in 170 cases; of these it was normal in 46, elevated in 106, and subnormal in 18. In 35 of the 106 cases in which there was fever or some other cerebral complication was associated with the brain abscess, while in six cases it was not advisable, or indeed possible, to draw any deduction wth regard to the intracranial condition. In 65 cases there was elevation of temperature apparently with brain abscess alone; in a small number of these cases there might have been some other complication in the neighborhood of the sigmoid sinus. Lastly, as stated above, there were 18 cases in which the temperature was subnormal. Consequently it follows that in rather more than half of the cases of uncomplicated brain abscess the temperature is raised, a state of affairs which differs from the earlier teaching upon this important clinical point. Rigors do not appear to have been frequently noted. In only six uncomplicated cases was this symptom observed.

The most frequent of the general cerebral symptoms is headache. It was present in 103 cases. Stiffness of the neck was noted 12 times, and general convulsions in 10 patients. In only 28 cases was the headache complained of on the same side as the abscess, and in 14 additional cases there was tenderness in the temporal region upon the same side. Disturbance in cerebration occurred in 105 cases. Mental symptoms were very rare. The sensory disturbances ranged from the slightest form of slow cerebration to loss of consciousness and coma, which occurred in 74 cases. Heavy stupor did not adversely influence operative procedure, as in 24 cases in which there was unconsciousness or coma 13 recovered after operation. The pulse was noted as slowed in 73 instances. Eye symptoms, varying in degree, were met with; in 60 cases changes in the fundus were noted.

In regard to the localized cerebral symptoms, aphasia, which is so characteristic of left-sided cerebral abscess, occurred 53 times in a total of 96 abscesses of the left temporosphenoidal lobe. Twice, however, a temporary aphasia was noted in a right-sided brain abscess. Hemianopsia was met with six times. Motor disturbances on the opposite side, whether of the nature of paralyses or as unilateral convulsions, were noted in 70 cases.

As to prognosis, out of the 195 cases, 180 are suitable ones from which to draw conclusions. Out of 106 cases in which the brain was explored through the squamous temporal region, 40 recovered. Of 64 that were explored through the mastoid region, 31 recovered. Of 10 cases in which the brain was exposed, both through the tegmen antri and through the squamous temporal region, 8 recovered.

TREATMENT OF PILES BY POSITION.

OEDER (quoted in *British Medical Journal*, March 9, 1901) asserts that a patient can usually be kept quite free from distressing symptoms, and so saved the necessity of being immediately operated on, by lessening the pressure in the hemorrhoidal veins by raising the buttocks until the anus (and thus the plexus) occupies a higher position than the inferior vena cava and the heart. He places two wedge-shaped pillows or bolsters with their bases toward the foot-end, about 20 inches from the head-end of the bed. The two wedges lie on top of one another, making an elevation of some 16 to 18 inches. The patient lies with his buttocks at the highest point of the wedges on his back, but he finds that the body weight reduces the elevation by some 10 inches. The head must be placed against the head-end of the bedstead. This comfortable position may be varied by a half abdominal and a half right-sided position, in which he suggests that the left leg be flexed and the knee brought up on to the wedges. In ordinary cases he finds that it is sufficient to employ this position merely at night, and states that these cases react well if the position be repeated for two or three nights. In severe cases it is necessary to keep the patient in bed in this position for some days. At the same time local applications can be resorted to.

FOREIGN BODIES IN THE RECTUM.

ANDERSON (*British Medical Journal*, March 9, 1901) was called one evening by a colleague to examine a patient suffering intense pain, in whose rectum was discovered a small wedge-shaped bottle firmly impacted, the neck presenting at the anus. A wire was fastened about the neck of the bottle, but the bottle would not move from its position with moderate pulling.

It was then found that the bottom of the bottle was concave, forming a sucker for the mucous membrane. As much of the hand as possible was then pushed up the rectum to above the bottom of the bottle, thus allowing air to enter, and with steady traction the bottle was then removed. The bottle had evidently been pushed into its position inadvertently by the aid of vaselin.

ANTISTREPTOCOCCUS SERUM IN ERYSIPELAS.

MACMILLAN *(British Medical Journal,* March 9, 1901) injected ten cubic centimeters of antistreptococcus serum (Jenner Institute) in a severe case of erysipelas of the face and scalp. Feeding and medicinal treatment were almost impossible owing to persistent vomiting before the injection. The morning after the first injection ten cubic centimeters more was injected, and in the evening there was considerable improvement as regards the intensity of the erysipelas, and the sickness had much improved. At the same time the whole scalp had become involved, the temperature was at 101.6°, and the pulse at 110. The next morning another ten-cubic-centimeter injection was made; during the day sickness passed off entirely, food was well taken, and the swelling and tenderness were greatly reduced. In the evening the temperature was 99.4°, and pulse 102. The patient had an excellent night, and the next morning the face and scalp were free from tenderness except at the back of the head. From this point recovery was rapid and continuous.

Abortion was threatened for a week before the onset of the illness, but this was safely tided over and quickening was felt at the normal time.

THE VALUE OF THE ACTUAL CAUTERY IN PRURITUS ANI.

BANKS *(British Medical Journal,* March 9, 1901) points out that there is a certain number of cases of pruritus ani upon which no drugging or dieting seems to have any effect. These are the very worst cases, those in which the torture of itching becomes most exquisite. The patient's health may be seriously impaired from worry and want of sleep. In these cases the actual cautery, Banks declares, affords a prospect of cure when everything else has failed.

The patient should be chloroformed and tucked up in the lithotomy position. Any small skin piles should be clipped away with the scissors. If there are not many rugæ, then the large bulbous-headed cautery usually found in the Paquelin case should be used, and the skin for an inch and a half all around the anal orifice well frizzled. If there are any rugæ then the small cautery point should be used, and it should be introduced into the furrows between the rugæ as well as applied over the tops of them. In one of his cases the rugæ were so pronounced that he had to clip off the tops of them with a pair of curved scissors.

Banks reminds the physician interested that the vast majority of cases of pruritus ani are curable by finding out and doing away with what produces them. It is only in the very severe cases, for which no reasonable cause can be found, that he recommends the cautery. It is about twenty years since he used the cautery for such cases, and he has not used it more than a dozen times altogether; but he has found that the value of the remedy lies in its being unfailingly curative in absolutely intractable cases.

THE AFTER-TREATMENT OF EXTERNAL PERINEAL URETHROTOMY.

THOMAS, in the *International Medical Magazine* for April, 1901, describes his method of procedure in the after-treatment of external perineal urethrotomy as follows:

The patient is given, when possible, for a few days before the operation, cystogen, salol, or eucalyptol. The normal caliber of the urethra is ascertained with the urethrometer. When the stricture to be cut by external urethrotomy is due to gonorrhea, one or more strictures are nearly always found in the anterior urethra. These are thoroughly divided internally with the urethrotome—doing the external urethrotomy first. Through the wound in the perineum the finger is introduced into the bladder, which dilates and paralyzes the bladder sphincter and produces, what is desired, an incontinence for about three days, thus securing rest and continued drainage for the viscus. If a good deal of resistance is offered to the finger in the attempt to pass the sphincter, rather than resort to force, which might cause a tear, it is better to first use the Kelley female urethral dilator, or the uterine dilator, and partially dilate, after which the finger can be used. The bladder

is then thoroughly irrigated with an antiseptic solution, and afterward the urethra. A full-sized sound is now passed from the meatus into the bladder, which cannot be done unless all of the stricture tissues are freely divided, when the parts are given a final irrigation. Now, from this until recovery takes place, everything is left open—free from tubes and dressings—and three or four times a day the external wound is douched with a bichloride solution (1:4000), the douche-tube not touching the wound, and the urethra irrigated with a boric solution. The day after the operation the full-sized sound is passed, and then every third or fourth day until healing is complete. Some surgeons recommend that the sound be not passed for several days after the operation. Such delays are believed to be wrong, for by this time the strictures that have been cut, especially those in the anterior urethra, have united in part, and to pass a full-sized sound at this time would simply tear the partially united tissues apart, causing horrible pain and a copious bleeding, or a compromise would have to be effected by passing a smaller sound, and as a result the patient in time would relapse into the same condition as before, and in a few years the whole proceeding would have to be repeated.

By the method advocated by Thomas, in the vast majority of cases the cure remains permanent. His patients leave the hospital in from two to three weeks with the parts healed soundly. When the operation is done at a distance and no trained nurse is available, the parts can be kept clean and thoroughly sweet with a little instruction given to a member of the family, the surgeon having to see only when it becomes necessary to pass the sound.

About the only time when drainage becomes necessary is when it is desirable to prevent the wound from healing too rapidly, in hemorrhage from a laceration on the roof of the urethra following a traumatism, or in hemophilia. There should be no hemorrhage following the operation unless it has been performed under great difficulties.

OPERATION ON THE KNEE-JOINT OF A HEMOPHILIC PATIENT.

A case of operation on the knee-joint of a hemophilic patient is related by the *Medical Press* of April 10, 1901.

The operation was performed for long-standing internal derangement of the knee-joint, when it was found to be essentially one of rheumatoid arthritis with a sharp razor-like growth from the cartilage, which was the cause of the pain. It was then discovered that the patient was the subject of hemophilia, and the greatest difficulty was experienced in arresting the hemorrhage, which recurred profusely from time to time. In the first instance the wound had to be reopened and packed, but in spite of this bleeding recurred, and this happened also whenever the dressing was changed. Various styptics were tried only to be discarded as useless, but finally the bleeding was stopped by the administration of chloride of calcium and the local application of suprarenal extract. There was nothing in the history or the character of the joint to lead to a suspicion of hemophilia, and it was only upon very close cross-questioning that some account of difficulties the patient had had after teeth extraction was forthcoming, but concerning this the patient had not thought it necessary previously to make any reference. From a diagnostic point of view this case is an extremely instructive one, as it demonstrated the fact that a hemophilic joint, after repeated attacks of hemorrhage, undergoes changes very much like those seen in rheumatoid arthritis, and it is difficult in an advanced case to distinguish between the two conditions pathologically.

THE SURGICAL TREATMENT OF GENERAL PERITONITIS.

The *Medical Press* of April 3, 1901, contains a brief outline of a note by Hr. LANGENBUCH on the surgical treatment of general peritonitis.

Operation gives no prospect of recovery except when the general sepsis is not far advanced. As in the treatment of abscesses in general, it is important to remove the pus and to prevent its accumulation again, so in general peritonitis. The best method of doing this is drainage from the lowest point—the pelvis. This part, however, only remains the lowest point as long as the patient is kept in the most upright position. Langenbuch therefore drains the Douglas pouch in women through the vagina, and in men from through the perineum. The patients are supported by bands, and are kept upright day and night and washed out

through the drainage tubes every two hours. In this way Langenbuch has been able to keep five out of twenty cases alive. He did not carry out any measures for searching for the point of origin. Of his five recovered cases, the disease started from the vermiform appendix in two.

Rotter, in addition to the drain in the pelvis, places one in each lumbar region, and believes that he drains more thoroughly by this method. It is not necessary to keep the patients in the uncomfortable position required by Langenbuch.

THE USE OF THE RETAINED CATHETER IN SOME LESIONS AND SUPPURATIONS OF THE MALE URINARY PASSAGES.

PARDOE *(West London Medical Journal,* April, 1901) has found the tied-in catheter of great service in cases of acute or chronic suppurative cystitis.

Another class of cases where the retained catheter is of service is where an operation has just been performed for litholapaxy. Professor Guyon, referring to the use of the sonde-a-demeure in this class of cases, makes the following very pertinent remarks: "Speaking generally, nothing is rarer than to see nowadays a febrile condition following a crushing operation. . . . Let me say only that among the last forty-nine cases operated upon here, apyrexia has been absolute in forty instances, and of the remaining nine in one case only has the temperature risen to 39° C. . . . In those cases of calculus where the urine is sterile to start with it remains perfectly clear, frequency and pain are absent, and in some cases cultures actually show no growth of organisms. . . . Our practice is always to tie in a catheter for from twenty-four to forty-eight hours following operation."

In ulceration of the bladder, apart from the ulceration due to long-continued cystitis, the retained catheter is of little service. In malignant ulceration, when advanced so far as to require drainage, the catheter is inadequate to secure it. In simple ulcer of the bladder the best treatment, as advised by Fenwick, is dissection out or scraping. Drainage will not avail. In tuberculous ulceration the less instrumentation the better. This is strongly advised by the same author, and it is unquestionably the fact that instrumental interference with a tuberculous bladder, however carefully performed, however many antiseptic precautions are taken, is liable to be followed by sharp fever and very serious general symptoms.

The lumen of the catheter to be tied in should be large, have at least one eye, be as far as possible incompressible, and be easily sterilized. When the drainage is to be undertaken to remove pus, the larger the caliber of the tube the better; Pardoe has found the silk-web catheters with two eyes, slightly *coudé,* the best for the purpose. In great prostatic hypertrophy it is found quite simple to pass any of the soft catheters upon a stout but not too stiff wire stylet bent to any required shape, to even a more pronounced curve than the usual prostatic catheter if wished. It is a mistake to use the olive-pointed catheters. No more than is necessary of the instrument should rest in the bladder, and in the olivary instruments the extra length is not only useless but is harmful.

In Paris the catheters of Pezzer have been somewhat largely used, particularly after such an operation as suprapubic cystotomy. They are practically self-retaining.

The tied-in catheter may be used for either continuous or intermittent drainage. In all cases of irritable, inflamed, and above all, of suppurating bladders, the drainage should be continuous. Where the bladder is not infected and the removal of urine is the sole desideratum, drainage may be intermittent. In either case the instrument is tied in in the same way.

The catheter is passed, and then by a little manipulation the exact point is noted at which it commences to draw urine. It is here fixed. Two tapes are tied to the instrument about one inch from the glans in such a way that four equal pieces about four or five inches long can be brought back and laid along the penis, two lateral, one above and one below. Between the glans and the spot where the tapes are tied to the catheter there should be packed antiseptic gauze, which should completely cover the glans. The tapes, placed in position, are then fixed by a turn or two of tape plaster behind the corona, and a small bandage over all completes the proceeding. If constant drainage is desired a short piece of rubber tubing is affixed to the end of the catheter and led into one of the many forms of urine bottle, partly filled with an antiseptic solution. If only intermittent drainage is necessary the end of the catheter may be closed by a bone or ivory cribbage peg. Each time this is

removed and replaced, it and the end of the catheter should be carefully cleaned.

So long as the bladder is empty, by real continued drainage, pain is absent. To secure this end there should be accurate position of the instrument, the eye within, but only just within, the bladder cavity. The patient will seldom complain of pain if the instrument is kept in the right position and is kept clear.

A retained catheter, however, invariably sets up slight urethritis. This is easily kept in check by removing the catheter once a day, and irrigating the urethra with boric acid or very weak silver solutions. There is cessation of the urethritis also when the catheter is finally withdrawn. Epididymitis and orchitis sometimes occur also, but the precautions just described are generally sufficient to prevent the appearance of these complaints. It is in cases where the catheter is too tight, or where the inevitable slight urethritis is neglected, that these troublesome symptoms occur.

Infection of a previously healthy bladder must be guarded against in the case of continuous drainage by seeing that the bladder is always kept empty and the catheter always in an antiseptic solution; and when the drainage is intermittent, by careful cleansing of the end of the catheter and the peg which closes it each time that the water is allowed to flow.

A CASE OF ANTHRACEMIA WITH SEPARATE POINTS OF INOCULATION ON THE RIGHT ARM.

There is reported by BROMET in the *West London Medical Journal* for April, 1901, a case of anthracemia, interesting because there were three separate and distinct points of inoculation, each becoming the seat of a distinct eschar typical of the disease, and because of the manner in which the inoculation occurred, despite the precaution taken by the patient to put on long india-rubber gloves which extended as far as the elbows before killing a cow supposed to be suffering from anthrax, and to bathe his hands, after the task, in a strong solution of Jeyes's fluid and hot water. The poisonous secretion no doubt found its way between the inside of the glove and the patient's arm, and infected him through some imperceptible abrasion of the skin. Not the least interesting point about the case was the rapidity of recovery, despite the fact that the treatment was not commenced until the sixth day after inoculation.

There was first noticed three small pimples on the lower third of the extensor surface of the right forearm, about two inches apart from each other. They itched slightly. The pimples having grown by the next day to the size of a pea, the arm swelling, and the patient feeling ill and restless, the physician consulted applied carbolic acid to the papules and ordered boracic fomentations. About three days afterward the diagnosis of anthrax was made.

The right arm was very much swollen, brawny, and indurated from the fingers to the shoulder. The axillary glands were large and tender. On the extensor surface of the right arm in its lower third were two pustular swellings (the third having disappeared after the application of carbolic acid), presenting in a typical manner the characteristic appearances of the so-called "malignant pustule." The center of each pustule was black, dry, and depressed, surrounded by a slightly elevated and irregular margin of small vesicles. The surrounding edema was very firm and extensive. There was very little redness and little or no pain. Respiration was 35, pulse 90, and temperature 104.8°. There was occasional vomiting, but no diarrhea. There was nocturnal delirium. Tongue was hard, dry, and cracked. There were sordes on the teeth and lips. The general condition was apparently very critical, especially as the pulse, temperature, and respiration were increasing. Auscultation revealed a few moist sounds in the right lung.

Shortly after admission an anesthetic was administered, and the pustules and surrounding indurated tissue were removed very freely. Carbolic acid was applied to the raw surface. Nine incisions were made at different sites in the arm and hand, from which seropurulent fluid escaped. Drainage-tubes were passed between the several incisions, and pure carbolic acid freely applied. Iodoform powder was dusted on the wounds, and the whole arm dressed with cyanide of mercury gauze wrung out in 1-in-2000 biniodide of mercury solution.

A white gelatinous appearance of the subcutaneous tissue was well marked.

On the day following the operation the arm was immersed for half an hour at a time, on four occasions, in a mercurial bath (1 in 1000).

On the fourth day the temperature was normal, pulse 74, respiration 18. The edema was rapidly subsiding, and there had been no delirium since the night following the operation. The patient left the hospital on the eighteenth day.

MERCURY AND IODIDE OF POTASSIUM GIVEN INTERNALLY WITH PILOCARPINE HYPODERMICALLY IN DISEASE OF THE EYES.

The employment of mercury and iodide of potassium internally given with pilocarpine hypodermically in disease of the eyes has given such satisfactory results in so many of his cases that BURNHAM *(Lancet,* April 27, 1901) feels justified in advocating the superiority of this combined treatment. Its efficacy is probably dependent on its power to arouse to excessive activity, in a vigorous and sustained manner, the normal physiological processes in diseased tissues, thus acting in accord with the efforts of nature to bring about a restoration to a normal condition.

In one of the cases described there was found at the upper and inner part of the eyeball in the ciliary region very severe scleritis, limited, the patch of exudation being large, swollen, and deeply congested. The adjacent cornea was infiltrated with a cloudy opacity up to and slightly beyond the pupilary margin, and there was much pain, photophobia, and other symptoms. Mercury and iodide of potassium were given for ten days, and atropine was used locally. The severity of the symptoms was lessened, but the progress of the sclerokeratitis was not stayed. In nearly a month the scleritis was more extensive, and the cornea was infiltrated almost throughout its whole extent. Pilocarpine was then given daily in doses of one-sixth of a grain for two weeks, and then at intervals of from four to six weeks for seven injections, one each day. In about three months the sclerokeratitis was cured, but there was left a decided corneal haze. The treatment was no longer necessary for the scleritis, but it had to be kept up so as to clear up the cornea and thus restore normal vision. At the time of the report of this case an almost or entire normal vision was expected. The appearance of the formerly severely inflamed sclera was normal. The prognosis regarding this form of sclerokeratitis has always been gloomy, but under the combined treatment described a permanent curative effect may be secured.

A second case suffered from acute sympathetic ophthalmia. For nearly eight months this patient had taken internally five grains of iodide of potassium thrice daily after eating, and the twenty-fourth of a grain of bichloride of mercury before eating. One-tenth of a grain of pilocarpine was given hypodermically every second day after the first two weeks for five months continuously. During the remainder of the eight months at the end of every two weeks there was given an injection every second day for six injections, which were continued. The apparent result will be for all practical purposes an eye normal as regards vision and its general condition.

Burnham has been employing this treatment in a case of double conical cornea with very encouraging success.

HOUR-GLASS STOMACH.

After a careful examination of many museum specimens, and observation of operations performed, six of these having been performed by himself, MOYNIHAN *(Lancet,* April 27, 1901) feels warranted in saying—especially since pathological changes producing marked changes in the contours of the stomach may be inconspicuous, since ulceration in association with congenital deformity is frequent, and since in many of the examples no purposeful examination of the specimen has been made—that congenital hour-glass stomach, though certainly rare, is not invariably mythical.

Acquired hour-glass stomach may be caused by perigastric adhesions, by ulcer with local perforation and anchoring to the anterior abdominal wall, by circular ulcer with subsequent cicatricial contraction and induration, and by cancer.

The symptoms are most often those of dilated stomach supervening upon chronic ulcer of the stomach. In most of the cases recorded a diagnosis of "dilated stomach" has been made, and in those dealt with surgically operative interference has been undertaken for the relief of supposed pyloric stenosis. In certain cases, however, the symptoms and signs are clear and pointedly characteristic. There may be disappearance of fluid introduced through the stomach-tube, as though it had flowed through a hole; after cleansing of the stomach by lavage a sudden gush of putrid, sour, ill-

digested food, etc.; "paradoxical dilatation," succussion splash in pyloric cavity after siphonage of the cardiac loculus; distention of cardiac loculus, its gradual subsidence, and concomitantly the distention of the pyloric loculus; a gurgling, forcing sound heard over or near the middle of the stomach; on distention with CO_2 a large increase even to a doubling in the thoracic area, tympanitic on percussion, and a slight distention, clearly demarcated, of the pyloric loculus; and rarely a sulcus may be seen on inflating with CO_2.

If the constriction be near the middle of the stomach, if there be little induration and no active ulceration, and if the pylorus be free, a gastroplasty will prove successful. If the constriction be in any part of the middle third or half of the stomach, if the pouches on each side are sagging and free from adhesions, and if the pylorus be free, a gastrogastrostomy will suffice. If, however, the stomach narrowing be associated with pyloric stenosis, the existence of which must be suspected if the pyloric segment is dilated also, no single operation will suffice. A gastroplasty and a pyloroplasty, or a gastroplasty and a posterior gastrojejunostomy, must both be performed. It is possible, in some cases where the lesser curvature is dragged down to the greater, that the incision dividing the constriction in the stomach might be utilized for the purposes of an anterior gastrojejunostomy. If on separating parietal adhesions a gastric fistula be found, the ulcer may be excised, or its edges may be trimmed, and a gastroplasty may be performed. If the constriction be due to new growth, a partial or complete gastrectomy may be performed. If these prove not feasible, a palliative jejunostomy may be necessary.

In gastroplasty a transverse incision, four inches long at least, is made, dividing the stricture. The incision is then stitched up vertically. Two continuous layers of sutures are introduced, one for the mucous membrane only, or all the coats, and the other for the serous and subserous coats alone. As performed first by Wölfler, gastrogastrostomy or gastroanastomosis calls for incisions made into the dependent pouches on each side of the constriction, vertical, and seven centimeters long. An adequate anastomosis between the two halves is thus made. In gastroenterostomy, if the anastomosis is made between the pyloric cavity and the intestine, the operation must obviously be ineffective, as the constriction is not relieved; if between the cardiac cavity and the intestine the pyloric loculus will be undrained, and a second operation may be necessary. In cases of cancer always, and in some cases of simple disease, a partial gastrectomy may be the operation of choice. In cancer a wide excision should be made; in simple disease a removal of the constriction will suffice. In both an end-to-end suture is desirable.

RESECTION OF THE VENA DORSALIS PENIS FOR IMPOTENCY.

LYDSTON *(International Journal of Surgery,* June, 1901) asserts that the ignorance of anatomy displayed by those who claim that it is possible to ligate the dorsal vein of the penis subcutaneously is only paralleled by their effrontery in claiming cures from that operation *per se.*

The value of ligation is not questioned, but Lydston is of the opinion that the cases in which the most brilliant results have been attained have been those of psychic impotency, in which an alleged operation upon the dorsal vein of the penis would be likely to be equally efficacious with the genuine article. Where it is suspected that psychic influences enter into the etiology of the case, ligation of the superficial veins may be performed primarily, where these are enlarged, the patient being duly impressed with the importance and value of the operation. If this treatment fails to secure the desired result, the more radical operation of ligation of the vena dorsalis penis proper may be performed. Where psychic influences can apparently be eliminated, this procedure may be undertaken primarily.

The results of the operation obtained by Lydston are not such as to warrant his participation in the exuberant enthusiasm of most of those who have reported similar cases. A perfectly satisfactory result has been obtained in about twenty-five per cent of cases; but in some of these the psychic influence has not been wholly eliminated. But slight improvement is reported in half of the remaining cases.

The resection of half an inch or more of the vein is recommended rather than simple deligation. Every precaution should be taken to avoid suppuration to prevent deformity, if not even more serious conditions.

EFFECT OF ROENTGEN RAYS IN A CASE OF CHRONIC CARCINOMA OF THE BREAST.

Before being put under the influence of the *x*-rays, and in 1898, the right breast of a woman sixty years old consisted almost entirely, according to CLARK *(British Medical Journal,* June 8, 1901), of a red ulcerating surface with a hard margin, the whole fixed firmly to the pectoral muscle and bony structures beneath. Under the skin at the edge of the ulceration, toward the axilla, a hard mass could be felt. In the axilla several indurated glands were distinguished, about the size of a large hazelnut, and immobile. With the exception of several punched-out deep ulcers on both legs the patient was apparently in good health. About two years later induration and ulceration had gradually extended, and then the application of the *x*-rays was suggested.

The surface was exposed to the influence of the rays for fifteen minutes at a time for five days a week. There was steady improvement, the induration gradually becoming less, and the patient suffering but little pain. About two months from the time treatment was begun the glands in the axilla had become smaller, and the general condition of the patient had improved.

TUBERCULOUS LESIONS OF BONES AND JOINTS.

MORET *(Thèse de Paris,* 1901) found in his observations extending over 3000 cases 178 patients over fifty years old suffering with tuberculous disease.

The foot seems to be the most frequent seat of tubercle in elderly people. The ribs, the knee, the sternum, the wrist, the hand, and the vertebral column come next in order. Moret thinks that hip disease and Pott's disease are the worst. Amputation, contrary to expectation, appears to give better results than does conservative treatment.

Clements has recently observed that spinal disease is very much more frequent in old people than is supposed. There are three forms; in the first it may be called classic. The usual appearances are present —kyphosis, abscess formation, and signs of compression of the cord. The projection is more rounded than in children, is often painless, and compensation curvatures do not exist. Abscess almost always escapes recognition, for it becomes surrounded with a fibrous capsule, and seems to remain in the neighborhood of the vertebral column without tending to point externally. In the second form the prevailing symptoms are those of transverse myelitis and root compression. There is no kyphosis nor any sign of disease. Intense neuralgic pains are often present, according to the distribution of the roots involved. Paralysis of the limbs, bladder, and rectum sometimes appears suddenly; trophic lesions are not wanting. Many cases answering to this description are not correctly diagnosed. Attention is centered on the possibility of a cord lesion without the idea suggesting itself that the case may be one of compression. In the third form symptoms and signs are latent. The cases are therefore not diagnosed, and an extensive tuberculous lesion in the vertebral column is discovered by accident post mortem.—*British Medical Journal,* May 25, 1901.

MEDIASTINAL SURGERY.

QUÉNU *(Bull. et Mém. de la Soc. Chir.,* No. 12, 1901) suggests that in cases of foreign bodies, especially a metallic body such as a detached tracheotomy tube, in the air-passages, when other means fail, it may be allowable when immediate asphyxia is threatened to cut down upon the trachea or bronchus at the seat of obstruction. For approaching the air-passages this surgeon favors access from behind, and through the posterior mediastinum.

For exposing the right bronchus, the patient being turned on the left side, Quénu would make an incision about five and one-half inches long from the level of the third to that of the eighth rib along the posterior border of the scapula. From each extremity of this vertical incision a short incision is made toward the spine. The dissection being carried down to the bone, the flap of skin turned inward, and the third and three lower ribs resected, a large opening is formed in the chest wall. The exposed pleura is now displaced outward, and the esophagus is searched for and compressed against the spine. The finger passed to a depth of about three inches from the edges of the divided ribs can be brought into contact with the line of tubercles formed by the posterior extremities of the cartilages of the trachea and bronchus. If the bronchus be brought by means of a hook near the more superficial parts of the wound, its membranous part

can be readily felt and incised, and the foreign body removed. The only vessel of importance that need be exposed is the vena azygos. Quénu recognizes, however, that cadaveric exercises of this kind are not to be compared with operations on the living subject, and he points out that embarrassment must be caused by pulmonary expansion. This difficulty, however, may be overcome by the use of a special form of retractor.

Poirier recently removed a large sarcomatous growth from the anterior mediastinum by resection and removal of the manubrium sterni. The patient was much relieved, but because of close and extensive adhesions to the pericardium and the large vessel near the heart, it was found impossible to remove the whole of the disease.—*British Medical Journal,* May 25, 1901.

PERIPHERAL "ANESTHESIA-PARALYSIS."

A thorough search of the literature on this subject revealed to BRICKNER *(New York Medical Journal,* April 27, 1901) but four reported cases in which paralysis of both arms occurred during narcosis. Brickner contributes the fifth case, and after a discussion of the information available on the subject of peripheral "anesthesia-paralysis" draws the following practical deductions as to the prevention of these always disagreeable and sometimes permanent sequelæ.

The care of the arms is as important a part of the anesthetist's duty as is the administration of the narcotic. The arms should not hang over the edge of the table; this position threatens the musculospiral nerves by pressure, and the entire plexus by stretching. Rotation and superextension of the head should be exercised only while emergency requires it; prolonged pressure of any kind should be avoided. The shoulder-strap of a leg-holder, when used, should pass over the tip of the shoulder, or over a large pad of cotton-wool on the neck; or, best of all, should be held by an assistant. This apparatus has sometimes caused paralysis in a leg. The common practice of drawing the arms alongside the head is a bad one, and should not be tolerated. The safest rule is to avoid allowing either arm to remain for more than a few minutes in any one position, however innocent that position may appear.

CREMASTERIC REFLEX IN SCIATICA.

GIBSON (quoted in the *Medical News,* June 15, 1901) has called attention to a remarkable exaggeration of the cremasteric reflex in cases of sciatica, not alone in those of the more serious neuritic type of the disease, attended with muscular wasting and alteration of the electric reactions, but also in those of the less grave neuralgic variety. The reflex was obtained not only by gently stroking the skin on the inner aspect of the thigh, but also and much more readily by firm pressure over the lower and inner part of Scarpa's triangle, whose sensory nervous supply is derived from the internal cutaneous branch of the anterior crural nerve. The last procedure was in some instances followed slightly later by a less distinct contraction on the opposite and unaffected side. The exaggeration of this reflex was found in cases not exhibiting much increase in the knee-jerk, as well as in others with great augmentation of myotatic irritability. In some instances the plantar and gluteal reflexes were exaggerated equally with the cremasteric; in others the last was marked, while the former were scarcely elicitable. In no instance was the increase in the cremasteric reflex associated with dorsal flexion of the toes on irritation of the sole of the foot. In explanation of the phenomena described it has been suggested that in the presence of sciatica the segments of the cord above the level of origin of the sciatic nerve from the lumbosacral cord — including therefore the second lumbar, in which the cremasteric reflex center and also the knee center are believed to be situated—are in a state of excessive irritability, while the segments below, in which the plantar, the gluteal, and the ankle centers are situated, are but little if at all influenced.

OOPHORECTOMY IN THE TREATMENT OF CANCER OF THE BREAST.

BOYD, in a lecture abstracted for the *Medical Press* of April 24, 1901, says that complete removal at the earliest date is the only valuable method of treating cancer. He thinks it should be laid down as a rule that the nature of a tumor in the breast of a woman over thirty-five years of age ought never to be allowed to remain doubtful. If it is not highly probable that the mass is non-malignant an exploratory incision should be

made into the swelling, the diagnosis established by inspection, and suitable treatment at once carried into effect.

As to the treatment of recurrences, especially if they are inoperable, double oophorectomy appears to offer, in suitable cases, the best chance of real alleviation. The treatment consists in the removal of the ovaries and most of the Fallopian tubes. The after-treatment consists in rest in the recumbent position for three or four weeks, the patient being kept warm and well fed. In some cases the gain in health and flesh is quite remarkable. Seventeen out of fifty-six collected cases have shown improvement, varying from marked diminution to actual disappearance of the cancer present.

Of the seventeen cases, five were either free from cancer at the end of six months, or markedly improved for six months, and then began to recur. The same might be said of three cases at eight to nine months, of four at twelve months, of one at eighteen months, of one at twenty-seven months, of one at three years and four months, and of one at four years and one month. Boyd believes that in some of the cases recorded in which oophorectomy failed to cause disappearance of the disease it delayed its progress. In the majority of cases the operation is not very severe, and its results are good enough to justify its recommendation.

RESULTS AND SEQUELAE OF EXTIRPATION OF THE GASSERIAN GANGLION.

KRAUSE, of Berlin, according to the *Medical Press* of April 24, 1901, speaks very hopefully of his experience in twenty-five cases in which he has performed the operation for the extirpation of the Gasserian ganglion for the relief of intractable neuralgia. Relief was given in all the cases excepting one, which was not true neuralgia. Three deaths occurred, but these were due apparently to accidental causes foreign to the operation. The painful symptoms did not recur in any case, and some of the cases have been under observation for eight years.

As to the sequelæ, the most noteworthy symptom was an abnormal sensation of some kind, never painful, supervening especially after intellectual strain. More or less serious lesions of the cornea were occasionally observed after operations involving the second branch of the trigeminal. Oculomotor paralyses followed in several instances, but were always of an ephemeral nature. Cerebral symptoms were noted in two or three cases.

In view of the severity of the symptoms for which this grave operation is performed, these results may be regarded as satisfactory.

REMARKS ON GASTROENTEROSTOMY.

That the operation of gastroenterostomy is an excellent one, and one which may be undertaken even in advanced cases of cancerous obstruction of the pylorus with every prospect of immediate success and the prolongation of the patient's life in comfort for many months, or perhaps even years, is the conclusion to which WALSHAM (*Medical Press,* April 17, 1901) has arrived.

The operation he has invariably performed has been gastrojejunostomy, and this always by the anterior or precolic method, and by means of Senn's plates or Murphy's button. It does not seem to matter to Walsham, provided the opening is made somewhat near the greater curve, whether it is on the anterior or posterior wall, and although there are said to be some advantages if the latter is chosen, the greater celerity with which the anterior operation can be performed more than compensates for the doubtful advantage that the posterior position of the aperture gives. Walsham believes that there is absolutely no danger of constriction of the colon if a sufficiently long loop of jejunum be left between its origin from the duodenum and its attachment to the stomach. None of his patients have presented any sign of stricture, and he does not believe, if the precaution mentioned is taken, that it could possibly occur. The absence of regurgitation of bile in his patients he attributes to the following facts: (1) that the attachment of the jejunum to the stomach was made sufficiently far from the duodenum to prevent any dragging on the aperture and consequent formation of a spur; (2) that several inches of the gut was attached to the stomach so as to obviate any kinking; and (3) that a half-turn was given to the gut before it was attached to the stomach, so that the direction of the peristalsis in the two viscera corresponded.

Murphy's button was used most favorably by Walsham in four cases of strangulated hernia with gangrene of the gut; in seven cases of excision of portions of the large intestine, in eight cases of gastroenteros-

tomy, in one case of combined pylorectomy and gastroenterostomy, in one case of excision of the rectum, and in one case of cholecystenterostomy. No perforation occurred, and no inconvenience was connected with its use, although one case is known where it was not passed until about two years had elapsed. It can be inserted very rapidly.

In addition to the button in the performance of gastroenterostomy, one or two Lembert sutures were inserted to insure a good length of stomach and jejunum being in contact; and where there was omentum at hand, as an additional precaution an omental graft was applied. The stomach of a patient who had been used to washing out of that organ was irrigated with a weak boracic lotion just before operation, but in a patient unaccustomed to this washing-out process this proceeding was dispensed with. The need for this washing does not exist if care is exercised in inserting the button so that none of the contents may escape into the peritoneal cavity.

The operation should be performed upon a hot-water bed. Walsham made the incision in the middle line, midway between the umbilicus and the ensiform cartilage. The stomach was easily found, and the part of the anterior wall to be opened was drawn into the upper angle of the wound and held there by pressure forceps. Two fingers were next passed across the transverse colon and to the left, and a loop of jejunum brought into the wound. The jejunum should be traced rapidly to the duodenojejunal origin. In inserting the button the very smallest amount of material should be included within the puckering strings.

The operation can be completed in about twenty or twenty-five minutes.

SHORT-CIRCUITING THE INTESTINE IN A CASE OF OBSTINATE ATONY OF THE COLON.

A case is recorded in the *Medical Press* of May 1, 1901, of a woman about twenty-nine years old who suffered with persistent constipation for about six years, apparently due to some disordered action of the splanchnics, resulting in painful and irregular spasmodic contraction of the colon, in place of normal peristalsis. This condition may have been due to the neurotic condition of the patient, the latter condition being probably due to malnutrition and prolonged suffering. She had undergone laparotomy three times before coming under the care of MANSELL-MOULLIN. He determined, as the patient was losing ground under the various methods of treatment tried, to open the abdomen for the fourth time and short-circuit the intestine, leaving the colon out altogether, by making an anastomosis between the lower end of the ileum and the sigmoid flexure. The median scar was excised; one or two adhesions of no importance found and divided; the stump of the appendix was inspected; and a lateral anastomosis by direct suture effected between the ileum and the sigmoid. The colon was examined for some distance, but appeared to be perfectly sound, and not particularly thickened or distended.

For the first two days there was a good deal of pain, but then it ceased. The wound healed without being touched. The patient improved at once, and in a little while was able to go about free from pain, the bowels acting readily with occasional doses of compound licorice powder.

In a note to his paper Mansell-Moullin says that since relating the case he has heard that the patient, though in much better condition, had had return of the pain to some extent, and that scybala were once more being passed. This, he believes, points to the insufficiency of the aperture of communication between the two parts of the bowel (probably it has contracted, as the natural route was left open), and to the advisability of enlarging it, or of planting the end of the ileum into the wall of the sigmoid.

ARTERIAL HEMORRHAGE FROM THE EAR.

After a review of the literature on the subject of arterial hemorrhage from the ear —otorrhagia—a rare complication of middle-ear disease is divided by SPENCER *(Medical Press,* May 1, 1901) into three groups, the first two unfavorable, but the third group, if treated early, favorable for the operation of ligature of the carotid, which has been followed by cessation of the hemorrhage if the inflammation has been of quite recent origin.

In the first group he places those cases recorded which were entirely unfavorable because of being secondary to pulmonary tuberculosis. The septum between the anterior part of the tympanum and the cartoid canal was found perforated or destroyed, with the formation of sequestra,

putting the artery in free communication with the cavity which had replaced the middle ear. The artery itself was separated from its canal and surrounded by pus, its walls thickened and softened, presenting erosions from the jagged sequestra, and one or more perforations at or close to the angle made by the artery in changing from its vertical to its horizontal course. Thus death occurred exceptionally by one sudden and furious hemorrhage; generally the hemorrhage ceased with the fainting of the patient, and recurred several times within a few hours, or a day or two before causing death. No clot was found in the artery, except in the ligatured cases.

The second group is made up of cases of chronic ear diseases, which are now subjected to surgical treatment. Spencer has not met with any recent case in which arterial hemorrhage has occurred. In most of these cases the carotid was more or less involved, and it may be that the hemorrhage in some of the cases recorded was favored by excessive doses of mercury.

In the third group is included the cases where the hemorrhage has arisen in quite recent inflammation, more or less acute. Spencer has not met with any submitted to post-mortem examination, so that the exact arterial lesion remains undetermined. Four cases are described where the successful treatment was ligaturing of the carotid, and in one of the cases Spencer himself performed the operation. The reported cases have all occurred in children. The most likely source of the bleeding, in the absence of demonstrable evidence, appears to have been the twig given off by the internal carotid to the tympanum—ramulus caroticotympanicus. An ulceration into this small vessel close to its origin would account for the free hemorrhage, and yet a clot would be likely to form should the carotid be tied, for in spite of the retrograde flow from the circle of Willis, the effect of the ligature must be to reduce the blood-pressure in the internal carotid to not more than one-third of its previous amount. It is difficult to suppose that the wall of the artery itself could have been perforated and yet no retrograde hemorrhage follow the ligature of the common carotid. The other possible sources of the hemorrhage were tympanic branches from the internal maxillary or middle meningeal, or ulceration into some of the branches of these arteries outside the base of the skull. A consideration of the severity of the hemorrhage in the cases considered certainly favored an origin close to the main trunk.

In the first group it is possible that ligature of the carotid would have been advisable as a palliative measure. As to the second group, the extension of the disease would now be prevented. The common carotid should be selected for ligature. The operation is thus easier and quicker, and the operation wound is further away from the septic focus. Besides, it is not certain but that hemorrhage may come, as in one of the cases recorded, from one of the branches of the external carotid, the internal maxillary, or middle meningeal.

SURGICAL TREATMENT OF ULCERS OF THE STOMACH WHICH HAVE BEEN COMPLICATED WITH SEVERE HEMORRHAGE.

KEETLEY (*Lancet*, June 8, 1901) has come to the conclusion that severe hemorrhage from the stomach indicates a condition requiring surgical treatment. He makes a distinction between severe and slight hemorrhages, placing under the first head hemorrhages which show, either by the vomit or by the stool, that pints and even quarts of fluid, chiefly blood, have escaped into either the stomach or the duodenum. Four cases are reported; the two patients operated upon recovered.

When the patient has fairly rallied and the extremities have become warm, with or without external heating appliances, if operation is decided on the sooner it is done the less will be the risk of being overtaken by another and possibly fatal bleeding.

Instead of resorting to the ligature of an ulcer found in one of his cases, Keetley preferred to separate the adhesions of the stomach to the pancreas and diaphragm, to scrape the ulcer, and to close the resulting gastric wound by suture. This long process does not, he believes, if proper precautions are taken, seriously endanger the success of the operation.

Where compression can be applied a ligature should be put on before removing the forceps. The cautery has not given good results. There remain, however, at least three other powerful agents which may be used in nearly every part of the body as protection against recurrent hemorrhage—rest, both local and general; aseptic measures; and iodoform gauze packing. The first

two can be applied without the aid of the surgeon.

It is often assumed when an eroded vessel stopped up by a clot recommences bleeding that some excitement of the circulation has displaced the clot; but Keetley thinks there is reason to believe that septic disintegration has been the chief agent in starting the bleeding afresh.

It has been found by a very extensive experience that ulcers heal and indigestion ceases if, by a successful gastroenterostomy or pyloroplasty, or even mere dilatation of the pylorus, all spasmodic or other obstructions to the free flow of the stomach contents into the small intestine are removed. The curative effect of these operations, Keetley suggests, may be due in some measure to the passage of bile and pancreatic juice into the stomach. As supporting this idea it is reported that traces of bile can be found in the stomach contents after gastroenterostomy. A sufficiently large gastrostomy opening would permit frequent and complete lavage of the stomach through it, and the patient could assist this by swallowing copious draughts of hot water—an act which would be very grateful to him and tend to remove one of the sources of distress which patients fed wholly by the rectum have to endure. The author has tried gas with oxygen as an anesthetic in gastrostomy and strongly recommends it; it has the great advantage of not being followed by vomiting.

Keetley, for fear it may be thought he has exaggerated the seriousness of gastric hemorrhage, says that he has been brought into contact with many cases of lateral curvature of the spine which presented a history of present or past symptoms of gastric ulcer and slight hematemesis.

One of the strongest arguments in favor of surgical treatment of gastric cases which have bled severely is that it generally gives permanent health to the stomach.

TRENDELENBURG'S OPERATION FOR VARICOSE VEINS IN FIFTY-SEVEN LOWER EXTREMITIES.

Trendelenburg, nearly ten years ago, showed that if pressure is made with the fingers on the saphenous opening, after emptying the veins of the leg by elevation, and the patient is then made to stand up, the veins continue more or less empty, and as soon as the pressure is removed the veins rapidly fill from above downward. He therefore advised excision of a part of the vein in the thigh, to relieve the varices of the tension caused by the weight of this column of blood. RAMSAY, during the last four years (*Intercolonial Medical Journal of Australasia*, April 20, 1901), has made a trial of this operation on fifty-seven limbs.

Varices were present in all the limbs, the troublesome complications being ulceration of the leg in twenty-five cases, thrombosis in three, and troublesome eczema in six cases. The other twenty-three limbs were operated upon to cure the varices, or to relieve symptoms caused by them alone. In the three cases with thrombosis, the pain and tenderness were present over the cord-like vessel, and in one case it extended almost up to the groin, preventing bending or straightening of the knee. The other two were confined to the leg. In the six cases with eczema, present for years, ulcers had not yet formed. In the twenty-five cases with ulcers of the leg, these last varied in size—sometimes single, sometimes multiple, of duration up to twenty years, and usually in the lower half of the leg. The varices in all cases antedated the ulcers, so that it was presumed that the tardiness of healing was perhaps due to the varices. Most of these cases came to be treated for the ulcer. Some gave history of injury to account for the ulcer, with or without a preceding thrombosis; others followed rupture of a varix; others formed in the site of a patch of chronic dermatitis.

As to the results of operation, the wounds all healed kindly, except where thin skin over a very superficial varix was left after its excision; this would often be better removed. Of course, thrombosis was frequent in and led to the permanent cure of many of the sacculated varices, but this was considered as a fairly natural result of the operation. There was a complete disappearance of the varices and all the symptoms due to them in many cases. In others disappearance of the symptoms was accompanied by a diminution in the size and number of the varices. In others a trifling symptom, such as a very slight swelling or aching, appeared after a longer or shorter period of perfect freedom from symptoms. In every case relief of the symptoms was the prominent feature, but in the unsuccessful cases a recurrence took place, leading to the breakdown of healed ulcers, the outbreak of eczema, and the reappearance of some of the previous symptoms.

Roughly, seventy-five per cent were suc-

cessful, and fifteen per cent doubtful; but ten per cent of these undoubtedly improved, and the rest were practically well for two and a half years.

The cases in which the operation should be avoided are those in which the deep veins of the limbs are presumably thrombosed, and the superficial ones compensatorily dilated, and perhaps varicose. The signs which might help in a diagnosis of this contraindicating condition are the history, *e. g.*, after thrombosis in typhoid, or after a strain, etc., pain and tenderness being present over the middle of the calf, and the limb being long weak; the deep veins may, however, become pervious again after the superficial varices have developed; and, as a second sign, the presence of thickening and enlargement of the whole leg, with or without edema of the limb, perhaps the presence of severe cramps. In such a case as the last, a bandage properly applied, perhaps with some massage, is about all that can be done.

PAINLESS REMOVAL OF ADHERENT DRESSINGS.

MIKULICZ suggests, according to the *Medical Press* of May 22, 1901, the painless removal of adherent dressings by wetting them with oxygenized water. This provokes a copious evolution of bubbles of gas, the mechanical effect of which is to free the gauze.

Reviews.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By Richard C. Cabot, M.D. With Colored Plates and Engravings. Fourth Revised Edition.
New York: William Wood & Co., 1901.

The present edition of Dr. Cabot's well known book upon the blood contains sixty pages more than the last edition, which is quite natural in view of the enormous amount of work which has been performed in the investigation of this important tissue. There are probably few departments in medicine which have developed a larger literature in so short a space of time, and it goes without saying that one of the chief objects of this book is to summarize this literature, and place the conclusions which may be drawn from it before the reader. It was this characteristic of the book which seemed to us at one time to be rather a disadvantage, in that some pages had the appearance of being a pure compilation rather than a contribution to hematology, although there is no denying that in regard to minor points at least the author does not hesitate to express his own personal opinion with the frequent use of the pronoun "I." To the ordinary reader the book also presents the disadvantage that at times it does not seem to be dogmatic enough in regard to the conclusions which are arrived at, but it is only fair to state that as a rule this uncertainty depends upon the fact that investigation has not advanced far enough to permit of a definite statement rather than to any desire on the part of the author to seem uncertain. The book is based not only upon a large acquaintance with current literature concerning diseases of the blood, but also upon very numerous observations which have been made chiefly in the Massachusetts General Hospital by the author and by the internes who have contributed materially to the statistics which he quotes. We are glad to see that Dr. Cabot speaks in high praise of the work of Dr. A. E. Taylor on Leukemia, and of that done by Thayer upon the Blood in Typhoid Fever, and Ewing's Study of Malarial Infections. It is evident that Dr. Cabot is far more accurate with his microscope than with his pen, since in some instances sentences have apparently been written hastily. Thus he speaks of "typhoid" instead of "typhoid fever," and in at least one instance quotes de Saussure as "Saussure." We spoke of the earlier editions of this book when they appeared with praise. We can praise this edition still more. The medical reader who possesses Cabot's book may feel that he has before him all that is worth knowing in regard to modern hematology well arranged and discussed.

DISEASES OF THE INTESTINES. By I. Boas. Author's Translation from the First German Edition. with Additions by Seymour Basch, M.D.
New York: D. Appleton & Co., 1901.

It is not often that we pick up a work in which the writer uses no other title under his name than that of "Specialist in Gastro-intestinal Diseases in Berlin" without mention of any position which can be strictly called official. The name of Boas is familiar to every one in the profession who has kept himself in touch with modern methods for the investigations of diseases of the stomach; and practically all the work which Dr. Boas has contributed is worthy of careful consideration. After going over this book somewhat carefully we

have been impressed with the fact that while the translator's work is very well done, the German text has been preserved to such an extent that the book covers a greater number of pages than is necessary for the consideration of the subject at issue. On the other hand, it is due to the translator to point out that not only has the translation been excellently done, but that he has played the part of an editor with unusual skill. A great many pages contain foot-notes in which he expresses clear and valuable opinions which in many instances seem to us of equal value with those which are expressed in the body of the text itself, as he not only represents his own views, but frequently represents the views of others, and sometimes he quotes an array of authorities upon both sides of the question in order that the reader may fully appreciate the division of opinion which exists as a proper method of treatment or diagnosis in a certain condition.

We are glad to notice that in one of the earlier chapters attention is called to the frequency with which severe abdominal pain may be caused by small umbilical or crural herniæ. We have recently seen more than one case in which violent pain was produced by this, and in one instance an operation for appendicitis was performed only to find a normal appendix, the pain returning as soon as recovery from the operation took place and the normal relations between the abdominal wall and the intestines were reestablished. Another characteristic of the book which we think is worthy of commendation are the illustrations, which while numerous are appropriate, and in a considerable number of instances original. Another point of interest is the amount of space devoted to the therapeutics of the various conditions which are discussed. This is a division of medicine in which German works are apt to be crude and unsatisfactory, but in Boas's work the text concerning such matters is quite full and has been amplified by the work of the translator in many foot-notes, as we have pointed out.

We think that this book is particularly opportune, for although there have appeared within the last few months more than one volume upon this subject, there can be no doubt that beyond the treatment of acute diarrhea the profession needs training in the diagnosis and management of the more obscure conditions affecting organs in the abdominal cavity which frequently cause much suffering.

Copious bibliographical references conclude every chapter; thus, that upon intestinal neoplasms, which only covers a little over forty pages, has a bibliography containing ninety-four references, nearly all of which are German; the author apparently not thinking much of English, American and French literature. An interesting quotation is made from a paper published by Heimann, who has analyzed the 20,054 patients who died of cancer in the general hospitals of Prussia during the years 1895 and 1896. Of these, not less than 10,537 died of cancer of the gastrointestinal tract, and it is still more interesting to note that in this number 4288 affected the stomach; 1706 the intestinal canal *in toto*, and 1204 the rectum; 1011 involved the esophagus; and the rest were distributed on the tongue, pharynx, liver, gall-bladder, and pancreas. This emphasizes the very great frequency of gastric carcinoma over and above all forms of the disease affecting other portions of the alimentary canal.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By G. R. Butler, A.M., M.D. Freely Illustrated. New York: D. Appleton & Co., 1901.

Up to about five years ago there was no book which dealt with the diagnosis of disease from the standpoint of symptomatology alone. But recently more than one volume has appeared which deals with medical diagnosis largely from this point of view. The present volume is handsomely illustrated and contains much useful information. It covers nearly 1100 pages, and is presented by the publisher in a way that makes it attractive. The first part of the book deals with the evidence of disease; the second with diagnosis, direct and differential. In the first part the author very frequently resorts to italics to emphasize facts which he believes are of particular importance. A considerable amount of the text is also placed in fine type for the purpose of saving space, and it is very evident that the author has successfully attempted to embody in his pages practically all the information which he could possibly collect in regard to most of the diseases of which he treats. It is possible that this lays the book open to the criticism that many of the facts are stated in such a way as not to give a prospective of their relative importance, and that rare symptoms are noted as if they possessed the same importance as others which are more characteristic and of greater diag-

nostic value. To the medical practitioner who has learned to distinguish one symptom from another and to give each its needed importance, we believe that the book will prove distinctly helpful, but for the student we think it is too diffuse.

A Handbook of Pathological Anatomy and Histology. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Sixth Edition.
New York: William Wood & Co., 1901.

Workers in clinical medicine were pleased to hear that Drs. Delafield and Prudden intended to publish this new edition of their standard work, and in the actual publication of the volume this anticipated pleasure has full realization. For a number of years both of the authors have had a most enviable reputation in pathology and have done much to increase the name and fame of American research abroad. A characteristic of their work has always been that it appeals to the practical side of medicine, and the fact that Dr. Delafield has been for many years in active practice makes his readers feel that he does not look upon the subject with the single eye of the trained pathologist, but with the eye of the skilled physician as well. The statement in the preface that the work has been revised throughout seems to us to be much more correct than is common when this term is employed, and to their aid the authors have called a number of younger workers in pathology who by their contributions have distinctly improved the text where it had of necessity fallen somewhat behind the times. The present volume seems to us also to be better illustrated than any of its predecessors, and we hope that the profession will speedily recognize the usefulness of this edition and study it with the carefulness which it deserves. Without doubt a grasp of its contents will make better practicing physicians of us all. In one or two instances we have noticed foot-notes which do not seem to refer to the text, but which nevertheless are mentioned in the index, which index, by the by, is unusually complete and accurate.

An International System of Electro-Therapeutics. By Numerous Authors. Edited by H. R. Bigelow, M.D. Second Edition, Thoroughly Revised. Edited by G. Betton Massey, M.D. Illustrated.
Philadelphia: The F. A. Davis Company, 1901.

It is now a number of years since we reviewed the first edition of this system. The present edition differs materially from its predecessor. Thus, there are entirely new articles which relate to the use of the galvanic current, in the electrical treatment of carcinoma by cataphoresis and the Roentgen rays. In addition to these a number of other portions of the book have in their revision been distinctly added to, and it can be well said that he who possesses this work will have something which will give him practically all the information in regard to the uses of electricity in therapeutics that is necessary for its successful application. We have always thought that many of those who employ electricity in medicine are apt to become convinced of its possessing greater power than it actually does possess, and we believe that many of the articles in this volume illustrate this enthusiasm. While it is claimed by a number of electrotherapeutists that they are able to influence morbid growths in a favorable manner by the use of electricity, the great body of the profession has failed to be convinced of this fact, although if it were true its importance would of necessity impress the profession. This is particularly the case, we believe, in regard to the treatment of cancer by the use of electricity which is recommended in this volume. The article on the treatment of aneurism by electricity has been contributed by Dr. D. D. Stewart, who is a pioneer in the employment of this form of treatment in this country, and who deserves much credit for introducing a method which gives more promise in many of these cases than any other.

It may be fairly said, as we have already intimated, that this is the best book on electrotherapeutics which exists.

A Treatise on the Acute Exanthemata. By William Thomas Corlett, M.D., L.R.C.P.
Philadelphia: The F. A. Davis Company, 1901.

Specialism in medicine is rapidly extending medical literature. For many years we have had special works dealing with diseases of the eye, the ear, the throat, and the nose, and more recently we have had works dealing with malarial and typhoid fevers; and years ago Murchison and Collie wrote monographs upon fevers which are classics in medical literature. The present volume, which is very copiously illustrated by a large number of full-page plates, is a valuable contribution to the literature of the

eruptive fevers. In the first place it is exhaustive, in the second place it is accurate, and in the third place it seems to be based upon a large personal experience. Finally, an additional point of interest to us is that the writer gives a careful description of the methods of treatment which he thinks should be employed. While from some points of view it has been argued that exhaustive works dealing with special diseases are unfortunate in that they seem to emphasize the importance of one particular portion of clinical medicine to the extinguishment of others, there can be no doubt that the preparation of such monographs provides the general practitioner with a work of reference which in many obscure cases is most valuable. It is almost impossible for the author of the general text-book of medicine to do much more than describe the characteristic and typical manifestations of a disease as it is met with in the majority of patients, yet who of us has been in practice for more than a few months without having met with cases which had first puzzled him, and which ultimately pursued a course which left no doubt as to the correct diagnosis, although at first a seemingly essential symptom was entirely absent. Thus, the absence of fever in a given case of suspected scarlet fever would seem to necessarily contradict any such suspicion, yet we learn from Dr. Corlett's work that such cases do occur, and that many other variations in the manifestation of this disease are constantly met with.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., F.R.C.P. Lond.

Following hard on the heels of the British Congress of Tuberculosis came the meeting of the British Medical Association at Cheltenham. There is certainly nothing of an epoch-making character to record in the papers and discussions, though a good deal of controversial ground was usefully traversed in many sections. In the discussion on rheumatoid arthritis it was noticeable how completely the nervous theory had fallen into disfavor, giving place to diverse theories of bacterial origin. Garrod drew a hard and fast line between what he considers two distinct varieties—the comparatively acute "rheumatoid arthritis" which is typically seen in young women in polyarticular form with fever and pigmentation, and the more chronic and less widely spread "osteoarthritis," usually afebrile and attended by much less pain than the acute form. While regarding each disease as probably microbial in origin, he thinks that ultimately we should be able to refer each variety to a distinct specific organism. Further, he considers that the joint affection confined to single joints is a distinct affection. These views failed to commend themselves to the majority of subsequent speakers, who seemed rather to champion the essential unity of the disease in its varying manifestations. Herringham considers that the points of resemblance are more numerous than the differences, and that the differences lie more in the patients than in the diseases: thus in elderly subjects it is the bones, and in younger subjects the synovial membranes, that bear the brunt. Several speakers held that the joint lesions are infective, but that the infective agencies are multiple and in no sense specific: thus cases were recorded as directly referable to rectal ulceration and to cystitis, which was cured by the removal of these conditions. As a side-light on the etiology of the disease Luff stated that he had at present under his care six cases in which rheumatoid arthritis had followed removal of the ovaries. No fresh suggestions as to treatment were forthcoming. Of drugs, iodide of potassium and iron, arsenic and cod-liver oil, and guaiacol carbonate in ascending doses seemed to find most favor. There was a curious want of appreciation of local treatment, such as massage and dry heat, which in certainly a large number of London hospitals is almost exclusively employed.

Another pregnant discussion was that initiated by Reginald Harrison on "Renal Tension and its Treatment by Surgical Means," a subject that has cropped up now and again in medical literature in the last few years. It has probably happened to most physicians to seek surgical assistance in a case of suspected renal calculus, and to fail to find it when the kidney is exposed. The compensation, however, for the mistake is now and again to be had in complete cessation of the renal symptoms, following on puncture or incision of the kidney. Is this merely due to relief of tension? Harrison considers that prolonged high tension may

initiate the morbid changes of Bright's disease. He asks how it is that acute nephritis never ends in suppuration or gangrene, and answers his question by asserting that death precludes the possibility. He cites the analogy of increased intra-ocular tension in glaucoma, and its relief by iridectomy and allied operations; and of the testicle in orchitis, where relief of pain and inflammation may often be secured by puncture or incision. But the strongest evidence of all is of course that afforded to the finger and eye of the surgeon, when the kidney is exposed in life. On these grounds the existence of high renal tension certainly deserves credence, but whether this condition may lead on to nephritis is certainly open to question. Harrison considers that it may do so by local extravasations of urine from the tubules into the kidney substance. Assuming all these facts to be proven, it still is open to question whether surgical interference is in any case of nephritis the appropriate means of relief. Certainly not in most cases of acute nephritis, as these tend to spontaneous recovery. Turning to acute cases with suppression of urine and threatening uremia, even if these can be referred to congestive changes in the glomerular epithelium, it is still open to question whether relief is not as effectually given by wet cupping, without the added danger of operation under an anesthetic; for we know that there is a free communication between the circulation in the kidney and that in the dorsal parietes. The same applies to the early cases of chronic nephritis supervening on an acute attack. With regard to the technique of the procedure, there are a few points to be specially noted. Other things being equal, he incises the capsule of the kidney along its convex border, unless extravasated blood suggests any other site; punctures, however, may be made almost anywhere except in the pelvis. Thereafter a drainage tube is carefully inserted so as to remain in contact with the kidney, and the wound is closed round it with silk sutures. Drainage is an essential part of the process and should be continued for some days or even weeks before the tube is removed. It is immaterial which kidney is selected for incision, as relief of circulation in the one promotes freedom in the other. For our part we would look on Mr. Harrison's arguments as very strong reason for the more frequent use of wet cupping in early cases of nephritis.

The bacteriology of rheumatic fever, at which so much work has been done in this country in the course of the last eighteen months, was another subject that came up for discussion. What struck one most was the incredulity that seemed to linger in the minds of most speakers. We have ourselves been fortunate enough on more than one occasion to see the actual experimental results of Drs. Paine and Poynton and to hear them state their own case, and it is difficult to get away from the conviction that the organism they describe is specific. It is, however, surprising that an organism so easy of isolation should have eluded careful search for so long a period of time. Clearly there is some additional factor in determining the incidence of acute rheumatism, as heredity is found to exist in at least one-third of all undoubted cases. One can hardly hope for the discovery of an antitoxin in face of the clinical fact that one attack seems in some degree to increase the liability to a second. At present, too, no success has been obtained in the immunization of animals.

Another bacteriological discussion centered around cerebrospinal meningitis. Drs. Nuttall and Hunter had isolated from the fluid removed in ten cases of lumbar puncture diplococci which they believed, on account of their staining reactions and characters of growth, to be distinct types. They formulated from their cases the following conclusions: (1) That the diplococcus agrees in its morphological and biological characters with the diplococcus intracellularis meningitidis of Weichselbaum; (2) that it occurs in two slightly different forms; (3) that in some cases it is present in pure culture, in others with other organisms—*e.g.*, bacilli of influenza or tuberculosis; (4) that the clinical picture and pathological changes found in these cases are those met with in posterior basal meningitis; (5) that in all probability posterior basal meningitis is a sporadic form of cerebrospinal meningitis and caused by the same microorganism, the diplococcus intracellularis of Weichselbaum; (6) that in the majority of cases it is impossible from the clinical aspect alone to make a correct diagnosis of the variety of meningitis present. The discussion on these points was mainly confined to bacteriologists, and for the most part they considered that the authors had been dealing not with two distinct types, but with two

distinct organisms, one of which was possibly the pneumococcus; from the clinical standpoint it is impossible to admit the identity of cerebrospinal meningitis with posterior basal meningitis. Incidentally the trustworthiness of Gram's method of staining was debated. Seeing that the method depends on a definite chemical reaction it is inconceivable that with identical conditions it should give different results. Therefore it should be taken that if the results are variable it is the conditions that have varied, and not the reaction.

Several points of interest were touched on in the Surgical Section in discussing the employment of gastrojejunostomy in ulcer of the stomach and duodenum and pyloric stenosis. There was very little difference of opinion as to the indications for gastrojejunostomy in ulcer, and its mode of performance. All were in favor of sutures in place of buttons, except where the shortness of the operation was of crucial importance; all were in favor of the anterior sites of implantation both on account of its greater rapidity and the greater certainty of a watertight joint, though theoretically the posterior site is preferable as a more dependent position in the recumbent posture. There was, however, much less unanimity on the question of the relief of pyloric stenosis. Barling holds that pyloroplasty is the operation of election in selected cases—*i.e.*, in cases in which there are no considerable adhesions, but quite inadmissible where such are extensively present. He looks with disfavor on Loreta's method of dilatation because of the risk of rupture of the gastric coat, and the liability to reappearance of contracture. Nor is there any advantage in the modified method of dilatation through the invaginated stomach wall; if dilatation is to be effected, it is much better done through an opening in the stomach.

Rutherford Morison supplied a few notes on the after-history of a series of cases of pyloroplasty for gastric ulcer and pyloric stenosis—a subject on which some information is of supreme importance. The general finding was that none had had a return of the symptoms and signs due to pyloric stricture. On these grounds he holds that pyloroplasty is the operation of selection for simple pyloric stricture, and that gastrojejunostomy should be reserved for cases in which the pylorus is so bound down or involved in adhesions as to be inaccessible.

In the Section of Tropical Diseases, Cantlie recorded some cases of abscess of the liver treated by Manson's method of tapping with a trocar and cannula and drainage. He expressed no preference for the method in the case of superficial abscesses over incision, but considers it by far the safest method in the case of abscesses buried deeply in the substance of the liver. The tapping is done by a trocar and cannula, and a large tube inserted stretched on a metal rod through the cannula to the bottom of the cavity. Thereafter siphon drainage is employed and the cavity left to drain without either washing out or flushing. The chief danger lies in the possibility of displacement of the tube.

Dr. Koch's bomb-shell at the recent Congress of Tuberculosis has resulted in the appointment of a Royal Commission to inquire and report with regard to tuberculosis:

1. Whether the disease in animals and man is one and the same.

2. Whether animals and man can be reciprocally infected with it.

3. Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission.

The commissioners are invested with full powers to call before them any witnesses whom they desire to question, to have access to all documents and inspect any places they deem expedient for their purpose, and while they are at liberty to report from time to time as they may think fit, it is the royal will and pleasure that they shall publish their full conclusions with as little delay as possible. A better commission than that nominated could not have been found in this country.

The report of the Board of Agriculture on the eradication of rabies from England deserves careful reading. In England and Scotland there has not been a single death from rabies since 1898, and this at a time when France reports from 2000 to 3000 cases in a single year. A few cases of rabies in animals have occurred in South Wales during this period, but no case has occurred in man. This result is entirely due to the uniform enforcement of the muzzling order throughout the country some three years ago. Now there is scarcely an area in which even a temporary muzzling is found necessary. May the government meet with the same results in the struggle with tuberculosis as in that with rabies!

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Two new observations of total excision of the stomach have been recently published in Denmark and Germany. This operation has been performed only three times so far in Europe. The first case was that of a woman fifty-six years old, operated on by Thorkild Rovsing. The latter had already performed nephropexia as a means of curing certain gastric troubles which were supposed to be due to the displacement of a kidney. Laparotomy was performed later and a scirrhous tumor was found on the middle portion of the stomach, which was removed, and the esophagus was sutured to a portion of the jejunum. The patient was operated on the 18th of October, and was quite cured by the 4th of December, 1900. The weight of the patient increased after the operation.

The second case, a woman fifty-two years old, was operated on by Bardeleben. The patient was in a condition of extreme cachexia, and laparotomy showed cancerous infiltration of the cardia and of the anterior wall of the stomach. Complete excision of the stomach was performed, the operation lasting only an hour and a quarter. No postoperative complications were observed, the patient being able to take food the third day. Three months after the operation the patient felt better and her weight had increased seventeen pounds.

Two new cases of death resulting from medullary cocainization have been reported during the last month to the Society of Surgery. The first was described by Dr. Broca, surgeon of the Paris hospitals, to whom the observation had been sent by Dr. Prouff. The patient, a woman sixty-two years old, imagined she had a foreign body in her foot, and notwithstanding the negative results furnished by the use of Roentgen rays, she insisted on an operation being performed. Local anesthesia might have sufficed, but Dr. Prouff wished to examine the condition of the hip and knee-joint, where symptoms of chronic arthritis were apparent, and therefore preferred using medullary cocainization. One cubic centimeter of a one-per-cent solution of cocaine prepared by Carrion was injected. The result was perfect, the patient being able to rise and walk immediately after the operation. There was neither vomiting nor diarrhea, and an hour after the injection the patient was able to go home on foot, a distance of two hundred yards, and walk up several flights of stairs. In the afternoon, however, there was a noticeable change, and four hours after the injection the patient was taken with severe pains in the back, which ultimately became very intense. Dr. Prouff was called to the bedside of his patient, and found her exceedingly pale, her pulse being very small, and the pains having become almost intolerable. He told her to get up and walk, and having found no motor or sensory anomalies, he reassured her and recommended patience. The next day the woman was dead. This observation shows, according to Dr. Broca, that it is not wise to put into everybody's hands this method for producing anesthesia.

Dr. Nélaton remarked that he had recently seen most alarming symptoms occur after an injection. There was extreme dyspnea, with a sensation of anguish and paleness of the face. Repeated injections of caffeine were made, and these symptoms passed away next day. An analysis of the cocaine was made, and it was found to contain certain products resulting from the decomposition of the cocaine. Dr. Rochard also remarked that he had had solutions used in his service examined, and they were found to be modified in some cases. One product found was ecgonine, which has properties similar to those of atropine. It is undoubtedly these toxic bodies which produce these disastrous symptoms. Dr. Segond, who is one of the foremost gynecologists in France, said that he had used this method in four cases, and the results were not encouraging. There were no grave symptoms observed, but the tremulation brought on by the use of cocaine was most disagreeable.

Another case of death was reported by Dr. Bousquet, of Clermont. The patient, a woman, was operated on for a strangulated hernia of the crural region, and two centigrammes of cocaine was injected into the arachnoid space. Cardiopulmonary symptoms were almost immediately noticed: dyspnea, pallor, imperceptible pulse; and during three-quarters of an hour injections of ether and caffeine and artificial respiration were resorted to. The patient came to herself slowly, but this was followed by extreme agitation (the author using the word terrible). The same evening she fell into a comatose condition, and died at two o'clock in the morning.

The treatment of tetanus by injections of

antitetanic serum does not seem to be favored by a certain number of surgeons in Paris. Dr. Bazy considers that suppuration plays an important rôle in the etiology of tetanus. On the other hand, Professor Berger says that this is far from being always the case, there being a number of cases where contusions, fractures, and dislocations without open wounds are followed by lockjaw.

At a meeting held on the 1st of July by the Academy of Sciences, Mr. Causre described a new method for analyzing water and recognizing the presence of organic substances. He employed crystallized violet, which is known under the name of hemamethyltriamidotriphenylcarbinol. A sulphurous solution, consisting of 25 centigrammes of crystallized violet to 250 cubic centimeters of a saturated solution of sulphurous acid in water, should be used. When poured into pure water the original color comes out, but in impure water this does not take place.

An article on the treatment of lumbago has just been published in the *Presse Médicale* by Dr. Plicque, some extracts of which will prove of interest. The usual form seen is the rheumatic; which must be differentiated with care from that seen as the result of muscular rupture, and which is quite localized and unaccompanied by fever and prostration. Another error of diagnosis which may sometimes be made is to mistake the rachialgia occurring in the initial stage of variola for an ordinary case of lumbago. The routine treatment consists in the use of local remedies, such as dry and wet cupping, or else leeching. Vapor baths are sometimes useful, but they may also aggravate the pain. Local applications of heat are often found beneficial. Professor Bouchard recommends the use of an embrocation consisting of three parts of Fioraventi balsam to one of chloroform. This is best employed by applying on the region a compress which has been saturated with this preparation, and covering it with a cloth dipped in cold water. This should be left in place at the most five minutes. Pulverizations with chloride of methyl are also very useful. They should be done very rapidly over a large surface. In certain forms of lumbago which are persistent, faradization is often efficacious. The skin should be thoroughly dried, according to Duchenne.

Intrarachidian injections of cocaine have been recommended recently by Drs. Achard, Marie, and Guillain. Half a centigramme is generally sufficient. According to Professor Debove this method is too serious to be advocated in such cases. The epidural method of Sicard is much safer and gives as good results, to judge from the cases cited by the author of the technique. Subcutaneous saline injections may sometimes be resorted to, but injections of morphine should be avoided, and in case there is much pain injections of fifteen minims of the following solution should be used:

Antipyrin, 5 grammes;
Cocaine, 0.10 centigramme;
Distilled water, 10 grammes.

In traumatic lumbago massage and prolonged baths are strongly indicated. Ordinary baths are just about as useful as alkaline or sulphurous baths, but the latter may have a psychic influence. When there is much effusion of blood it is best to avoid the use of wet cupping or leeches. Compresses soaked in the following solution are often beneficial:

Chloride of ammonium, 20 grammes;
Tincture of arnica, 10 grammes;
Water, 500 grammes.

These compresses should be put on when they are tepid, and covered over with a piece of oiled silk. In certain forms of lumbago seen at the onset of syphilis small doses of mercury or of iodide of potassium are advantageous. The latter treatment was recommended by Ricord.

When lumbago comes on at a later stage, it may be the initial symptom of meningomyelitis, and a severe treatment should in such cases be tried immediately. Generally speaking, ordinary rheumatic lumbago is very little affected by salicylate of soda, salophen, or antipyrin. In prolonged forms of lumbago, essence of turpentine is of some value, and can be given either in capsules or in an enema. Anemia and constipation should be treated, as they may have some influence. Hygienic precautions are also of importance, such as the use of flannel and the avoidance of any excesses. Dr. Chéron used to prescribe salol to certain patients suffering from chronic metritis with lumbago. Some forms of lumbago are symptomatic of aneurism of the aorta, and radiography is often of help in revealing the lesion. Professor Huchard, the heart specialist, has insisted on this. Lastly, there is a variety of lumbago due to urinary lithiasis and which is cured by a season spent at Vittel.

Most foreigners coming to the Paris school of medicine must have noticed the well-nigh absolute dearth of any postgraduate courses such as are found at Berlin or Vienna. Dr. Jayle, the chief assistant of Dr. Pozzi, has written an article in the *Presse Médicale* on this subject, and shows how deficient this form of medical instruction is in France. Nothing is to be expected from the Faculty of Medicine, which closes its doors during the summer months, once the examinations are over. The Municipal Council of Paris, which is of a progressive nature, is however about to take up the matter, and some developments in this line may be expected. There has been a notable falling off in the number of foreign students coming to study medicine in Paris, and it is due in part to the recent measures which prevent them from passing the usual course of examinations unless they can first of all pass the bachelorship of letters and sciences in French. As the usual instruction is generally given in a somewhat perfunctory manner, foreign physicians find it useless to waste so much time in following one set of lectures, generally very much too long, and to remedy this the creation of a municipal institute of applied medicine is being discussed. Short series of lectures lasting two or three months would be given by the most eminent physicians and surgeons of the hospitals, and these courses would only be open to physicians that have already graduated.

Tuffier has recently been using lumbar puncture as a means of recognizing fracture of the skull. In three cases, where some difficulty was experienced in deciding whether there was fracture or simple cerebral contusion, he examined the cephalo-rachidian liquid. In two cases the liquid was tinged with blood, which seemed to Dr. Tuffier to be sufficient proof that his patients had sustained a fracture of the skull. Both of them died. The third case was that of an old woman who was brought to the hospital in a comatose condition. The liquid was quite clear, and the patient was almost completely cured after two months. According to Dr. Tuffier, there would be some correlation between the coloration of the liquid and the extent of the lesions produced. Lastly, Dr. Tuffier thinks that it is not perhaps too hazardous to imagine that lumbar puncture may prove some day to be a means of reducing intracranial pressure and so replace trepanation in certain cases.

Dr. Netter, physician of the Paris hospitals, has examined 32,484 observations of children who were injected with antidiphtheritic serum as a preventive against possible infection. By putting aside a certain number of cases, where the infection came on twenty-four hours after exposure or only a month later, one finds only 192 cases where diphtheria supervened. This gives a six-per-cent proportion, whereas it is ten per cent when these injections have not been made. In his personal statistics Dr. Netter has only had two cases of infection out of 90 patients, which makes a proportion of 2.17 per cent. Out of 25 children who were placed in the service for doubtful cases, and not injected, there were three cases of diphtheria, or a proportion of twelve per cent. Drs. Comby and Sevestre agreed as to the usefulness of preventive injections, and the Society of Pediatrics, where this discussion took place, passed a resolution to that effect.

The latest statistics show an alarming increase in the number of cases of smallpox in Paris. The epidemic began after the Exposition, and last June there were 24 deaths in one week and 145 cases. Such a proportion had not been seen for the last nineteen years. In 1900 there were 211 deaths from smallpox: 15 before the 1st of June, from June to November 100, and 96 during the last two months. There have been this year, up to the 8th of June, 1790 cases and 234 deaths.

Dr. Terrier, clinical assistant of ophthalmology, has recently published an article on the treatment of conjunctivitis, from which the following principal points are to be gleaned. The author insists upon the necessity of making a bacteriological examination, so as to determine whether the affection is or is not of infectious origin. In the first case several categories can be established according to Morax: In a first group are to be classed the specific forms, such as catarrhal conjunctivitis, caused by the bacillus of Weeks; subacute conjunctivitis due to the diplococcus of Morax; and lastly, purulent conjunctivitis which coincides with the existence of the gonococcus of Neisser. Certain microbes, like the pneumococcus and the streptococcus, produce conjunctivitis only in certain cases; and lastly a special group should be made of forms due to secondary infection—for instance, when pseudomembranes are found, which are due to the Klebs-Loeffler microbe. Simple examination of the secretion without cultures

being made would seem to be quite sufficient according to Morax. In simple catarrhal conjunctivitis no bandage should be applied, and care should be taken to wash out the eyes frequently either with a boric acid solution or a solution of cyanide of mercury containing 1 gramme to 1500 of water. Instillations of one- or two-per-cent solutions of sulphate of zinc or of the following solution are indicated:

Ammonium chloride, 0.07 centigramme;
Sulphate of zinc, 0.15 centigramme;
Camphor,
Safran, of each 0.01 centigramme;
Distilled water, 15 grammes.

As for cocaine, it is not beneficial, as it is apt to cause desquamation of the epithelium of the cornea. In severe cases recourse should be had to nitrate of silver, which should be applied directly to the lids and neutralized by a solution of salt. Protargol is not so efficient; if used, a 25-per-cent solution should be employed. In subacute conjunctivitis, caused by the diplococcus discovered by Morax, instillations of a 2.5-per-cent of zinc sulphate are by far the best treatment. In blennorrhagic conjunctivitis the only really efficacious treatment consists in cauterization with a two- or three-per-cent solution of nitrate of silver. It is well to remember that the white precipitate which is formed by the nitrate with the solution of salt should be removed with a tampon, as it may prove harmful for the cornea. In some cases it is found necessary to cut open the external commissure. Care should always be taken to prevent the accumulation of pus between the eyelids. In the first stage of inflammatory infiltration, ice-cold compresses should be used and a leech or two applied on the side of the temple. The use of irrigations with permanganate solutions is certainly beneficial, but cannot replace the cauterizations. The pressure should be only of 30 or 40 centimeters, as the epithelium of the cornea might be injured otherwise. Biniodide of mercury can be used as well. In the non-specific forms of acute conjunctivitis the same methods are to be employed.

VERATRUM VIRIDE IN ECLAMPSIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I notice some articles in your issue of August 15 on "The Use of Norwood's Tincture in Eclampsia." I have used it in such cases for forty years. It is my first dose where there is arterial excitement. Also in hysterical convulsions it is my sheet-anchor. But I object to the size of the dose mentioned by some of the gentlemen as being unnecessary, and the action upon the stomach and uterus is bound to be bad. I use Norwood's tincture, and my first dose is six drops, with five drops more in forty-five to sixty minutes, and have never had cause to increase this materially. The old rule of Dr. Norwood for its use is a very good one, viz., "Commencing with four drops, increase one drop every three hours." This was laid down for pneumonia. In all forms of convulsions of course it must be exceeded somewhat, but the deathly sickness of this drug should be avoided if possible. Veratrine is now most generally used.

Fraternally yours,

A. G. CHASE.

MILLWOOD, KANSAS.

* * *

To the Editor of the THERAPEUTIC GAZETTE.

SIR: After seeing the opinions in the August issue of the GAZETTE as to the value of veratrum viride in eclampsia, I would that I had the prestige with the profession and power to impart my positive knowledge that veratrum is a sure and complete specific in puerperal eclampsia. Adjuvants in nearly every case, if not all, are useless or worse. This is emphatically so in all cases occurring during labor.

The writer has twenty years' experience of the most gratifying nature with the drug in these cases, but many years before Dr. J. R. Willits, of Fredonia, Kansas, first called physicians' attention to this use of the drug. A year or two afterward an eastern man—I believe from Philadelphia—reiterated Willits's article, claiming priority for this application of the remedy. Fifteen to twenty minims of Norwood's tincture (which may be the only reliable preparation), given hypodermically, will in a great majority of cases make a second dose unnecessary. However, as with other agents one must be governed by the strength of constitution of the patient.

A parturient, with convulsions ever increasing in number and severity in spite of the usual remedies, until when the writer was called twelve hours after the first seizure convulsive action was continuous and death imminent, was given a hypodermic injection of thirty minims of fluid extract of veratrum viride, mistaken for Norwood's

tincture; hence four times the dose intended. The patient was vigorous and rugged. She was for several hours highly intoxicated, but had no other untoward symptoms, and not another symptom of eclampsia.

A few days after the above case a weakly little woman was given six minims from the same preparation, and her pulse went down to forty-five and required stimulants, but she had no more fits.

Veratrum viride is a safe remedy. I saw a youth given fifteen minims of Norwood's tincture every three hours for eight days before it killed him. The efficacy of the agent in question is phenomenal, and had it been fathered by a designing proprietary house its value in eclampsia would have been as great and unquestioned twenty-five years ago as is that of quinine in malaria to-day. The lack of acquaintance with the drug evinced by many of the most prominent authors only shows how like the mighty "Gulliver" they have permitted the spider webs of habit to hold them helpless.

If the reader will give by the mouth the remedy as indicated and repeat *pro re nata*, placing entire confidence in its effectiveness, leaving all other medication aside, he can but be delighted, and this will not have been written in vain.

L. S. TRUSLER.

FALL RIVER, KANSAS.

Notes and Queries.

TRAITORS IN THE RANKS.

Immediately following the death and autopsy of the late President, there appeared signed articles in the daily press from several prominent physicians in this city, and an editorial in a leading medical journal, openly criticizing the physicians who attended President McKinley in a manner that has stung the whole medical fraternity into expressions of shame and scorn—shame that the editor of a journal that has always upheld the honor and dignity of the profession should have stooped from his high position to traduce by innuendo and covert criticism the medical men who attended the late President; scorn that any physician should have sunk to the level of the scandal-mongers of the sensational press and deliberately suggest to an excited and believing public weapons of suspicion to be used at random against the men who have handled this famous case.

It can readily be imagined that it must have been trying to the yellow journals that the *x*-ray apparatus was not used, and that they were defrauded of a skiagram of the dying President; but that any physician should sneer at the conscientious conclusions reached by the anxious surgeons to dispense with the *x*-rays and should state concerning this opinion that "it seemed safer to guess than to be sure" is, we feel, little short of an insult. "What excuse," is asked, "must be offered to the public for the utter inability to find the bullet even in the dead body?" But why, we ask, should the sympathetic, overwrought public think of demanding excuses from the medical men who by their strenuous efforts prolonged, for a week, the life of the doomed President, unless the idea had been suggested? To hint to the public that they are aggrieved and that they have a right to ask the surgeons to explain "why they allowed a lost ball to be buried with the victim's body" is little short of trying to make the nation's tragedy a popular spectacle.

It is not, however, this gallery play that deserves the severest condemnation. It is the subtle way in which many of these articles have been worded so that while they seem to mingle praise for the surgeons with lamentations over the inevitable, they nevertheless convey to the reader a startled sense of suspicion and alarm that all was not done that might have been done. We are ashamed of this utter violation of professional standards, of the manifest unfairness of making charges when the accusers could not possibly be in possession of the full details of the case, of the lack of charity in dealing treacherous, underhand blows to the few, and of this holding up to public criticism a vicious cartoon of medical men so prominent that the entire medical profession must bear the scoffs. It is these things that have amazed, pained, and angered the American medical brotherhood.

To so cruelly and maliciously hint that a "fatal blunder in diagnosis had been made," especially after the autopsy had demonstrated the necessarily fatal character of the wound, is evidence of a very low standard of professional ethics, and it is not to be wondered that the attending surgeons and the medical profession of the country should feel the affront and demand an apology.—Editorial in the *New York Medical News*, Sept. 28, 1901.

—THE—

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IRRITABLE SENILE URINATION AND ITS TREATMENT—A CLINICAL LECTURE.

BY JOHN H. BRINTON, M.D., LL.D.,
Professor of the Practice of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia.

GENTLEMEN—I wish to speak to you concerning irritable senile urination in the male, for you will meet with many such cases in your practice. Difficulties of urination form the curse of an old man's life. It may be that his water passes slowly, and with straining or pain; or he may be unable to void his urine in proper quantity, and this inability and deficiency may increase, until, perhaps, retention more or less complete ensues. A resort to the catheter, occasional or continuous, then becomes necessary, and eventually an operation of some sort may be called for. At times the patient experiences a dribbling of urine, the so-called incontinence, or he may apparently lose all control over his bladder. These occurrences of retention and overflow frequently are coincident or alternate, and may be often accompanied by distressing pains, and vesical spasms dependent upon the presence of small calculi.

These conditions of frequent and im-

peded micturition in old men usually, depend upon alterations in structure and chronic enlargement or hypertrophy of the prostate gland, and are often attended by pathological changes in the bladder walls. These must be distinguished from the results of old organic stricture of the urethra, which so often follow the indiscretions of earlier life.

The alterations in the prostate, the cause of so much misery to the aged man, may be due to inter- or intra-lobular indurations and enlargements, involving the gland and its stroma. The different prostatic lobes may be involved in part or in whole by an exaggerated development of the normal tissues, or by fibrous changes. The clinical symptoms, the discomfort of the patient, and his treatment are largely influenced by the extent and location of the lesions.

Thus an increase in size of one or both lateral lobes, even if very great, may give rise to symptoms marked and distinctive, and yet not necessarily produce much suffering. On the other hand, an enlargement of the third or middle lobe of the prostate, though it be not greater than a grain of corn, will occasion irritation, scalding, and distress. These symptoms, too, may be much augmented, if a small phosphatic concretion or calculus forms in the bladder, and be retained in a pocket or depression just behind the middle prostatic lobe. This occurrence is favored by the chemical changes and decomposition of stale urine, which accumulates when from any cause the bladder fails to void its contents at normal and physiological periods. Prostatic hypertrophy, especially of one or both lateral lobes, lengthens and at the same time distorts the prostatic urethra, and thus tends to bar the outflow of the urine. As the clinical symptoms of prostatic hypertrophy differ according to the portion of the organ affected, and the degree of enlargement, so too is the proper treatment influenced by the varying causative conditions. The differential diagnosis is therefore important, and must be reached by an intelligent comparison of the respective pathological changes.

Hypertrophy of one or both lateral lobes of the prostate may occur without material involvement of the middle or third lobe. Such changes can scarcely be recognized by external examination, but are readily appreciated by the patient, when sitting on a hard stool or chair, or when jolted in a rough wagon, or when driven over rough roads. By rectal touch, induration or enlargement of one or both lobes can usually be detected, and the increased size of that portion of the base of the gland resting against the bladder and above the rectum be readily made out. Sometimes when the bladder walls are thickened, and its capacity lessened, the organ and the prostate with it appears to recede from the perineum, and the sensation to the examining finger is vague. The contour of prostate and bladder becomes then merged and indistinct. There is tenderness, sometimes amounting to real pain, on perineal pressure. Occasionally these sensations may be referred to the suprapubic region. The patient often complains of a dragging or pulling sensation on moving, or when ascending stairs, and especially when going to stool.

Frequent micturition takes place, more markedly by night than during the day. The patient is usually obliged to rise from his bed to void his urine every two or two and a half hours during the night. This nocturnal urination, although frequent, is not commonly painful, nor is it difficult. The flow of water responds to the voluntary efforts of the man, although the amount voided at each time is small. The propulsion of the stream is diminished, the urine drops perpendicularly from the meatus, and the flow may be jerky, with a tendency to closing dribbling. When such a patient wakes at night there is no pain if the call be satisfied, and after urination he readily drops off to sleep. Usually his best and most refreshing sleep is obtained after daylight. The decubitus varies with individuals; most people state that they sleep best on the side. Dorsal decubitus is uncomfortable; it would seem that in this position the sensitive vesical triangle is markedly influenced by the accumulating urine, and patients often say that they awake from sound sleep with a desire to urinate. Should this call not be gratified, and if the man turn on his back and defer rising, the physiological desire to urinate will rapidly pass, through increasing uneasiness, into well developed pain, which will imperatively demand the early relief of micturition.

Hypertrophy of one or both lateral lobes may take place to a pronounced extent. Rectal touch at once recognizes the large smooth semi-elastic mass forcibly pressing backward against the upper wall of the rectum, so as apparently to nearly occlude or obstruct the lumen of the bowel. In such cases a mechanical constipation may be brought about. The evacuation of the bowel takes place slowly, and with considerable muscular effort, and the fecal dejections are flattened and tapy. The bladder, as one would suppose, sympathizes with these conditions. Dribbling of urine, a sort of incontinence, may take place at times, when the feces accumulate or are descending into the lower rectum. With the evacuation of the bowel this vesical sympathy usually disappears, to return as the next period of defecation approaches. When this great backward hypertrophy of the prostate happens, its presence and amount should be carefully noted, and care observed as to force and direction in the introduction of the syringe nozzle. I have on several occasions known serious shock, strikingly analogous to urethral shock, follow a rough introduction of the rectal tube. Indeed, the mere touch of the foreign, hard substance against the tender gland, although covered by the rectal wall, is often sufficient to give rise to a depressing sensation of chilliness.

When the middle or third lobe of the prostate gland is enlarged, the symptoms are much more decided, and the distress of the patient may be very great. The urination is difficult and very often painful, the pain being referred to the suprapubic and perineal regions. Often the urethra is so obstructed that retention of urine more or less complete takes place. There is then great difficulty in starting the flow of urine, and the stream is feeble. The propulsive power of the bladder seems gone, or, rather, the force of the bladder contractions is checked or counteracted by the projection of the third lobe into the urethra in midstream. It thus happens that the obstructing presence of a very slight growth, scarcely half the size of a small Lima bean, is sufficient to neutralize the most powerful vesical efforts. Under such circumstances considerable straining and muscular contraction precede and accompany the extrusion of the urine, and not infrequently the patient may twist his breast and trunk, flex his thigh and leg, press with his heel, and assume various strange postures, almost like a woman in labor, to favor the flow of the urine. Such violent, prolonged, and unsatisfactory urinary efforts may be attended with distressing, and indeed fearful, vesical tenesmus. The bladder strives to overcome all obstructions, and to rid itself of its contents. Failing to do this even in part, it falls as it were into a fury, contracting fiercely in spasms, which, accompanied by burning, scalding, irritation, and pain, become at last almost unbearable. As a result of these efforts there is distention of the ureters, pelvis, and calyces of the kidneys, and the establishment of surgical kidney. Structural alterations also occur in the vesical walls, with thickening and thinning, and the formation of folds and pouches; cystitis sets in, and the color of the mucous membrane changes to a slaty, grayish-black hue, and its secretion becomes thick, foul, and viscid. The free discharge of the urine being hindered, the bladder is never able entirely to empty itself. There is always some fluid left; residual urine in greater or less quantity, which loses its acidity, undergoes ammoniacal changes, is loaded with phosphates, bacteria, and blood, and becomes in fact putrid. These conditions, dependent on obstructive causes, if unrelieved, soon sap the strength of the sufferer, and lead to a fatal termination from surgical kidney, suppression of urine, exhaustion, or septicemia in some form.

There is one complication often met with in the march of these affections which demands especial attention. This is the occurrence of small calculi, which are found behind the urethral projection at the bladder neck. They are concealed, pocketed, and held in place by the body of the excrescence, and by the mucous folds which cover it and its surrounding nodules—glandular foot-hills, as it were. These calculi are generally about three-fourths of an inch in length, and of the thickness of a lead-pencil. They are phosphatic, with rough and irregular surfaces, practically immovable, and by their presence irritate the adjoining sensitive surfaces to an almost maddening degree. Their small size, their adventitious sur-

roundings, and frequently their coating with viscid, adherent mucus, mask their existence, and render their detection by the sound often difficult and sometimes impossible in the living subject. I have specimens in which the existence of such calculi could scarcely be determined by cadaveric sounding. As may be supposed, such a stone, the most irritating of all from its location at a peculiarly sensitive site, can only be gotten rid of by operation.

As already stated, in the simple moderate enlargement of one or both lateral prostatic lobes there is increased frequency of micturition. This is greatest at night, lessening in the morning after stool, becoming more frequent in the latter part of the afternoon, and most frequent again at night. This frequency is augmented by barometric changes, cold, dampness, by exercise, and by venereal excitement. The amount of urine is increased, but a greater proportion is passed at night than by day. It is occasionally of lessened specific gravity, but is not necessarily changed in appearance, unless cystitis occurs. Should this happen, the urine becomes cloudy and turbid. The presence of pus, bacteria, and microorganisms can readily be demonstrated by laboratory examination.

Treatment.—The most common causes briefly mentioned. These annoying con- of senile urinary irritation have thus been ditions can be treated and alleviated, and the patient, if he cannot be cured, can at least be kept in a comfortable state, and his life may be prolonged and made bearable. If not altogether happy, he may be made content. The most fearful instances of human suffering I have ever met with were those dependent probably upon prostatic hypertrophy and small calculi. They occurred many years ago, before surgery had fairly grasped the prostatic problem. Although as it happened these patients were treated by the most eminent English, French, German, and American surgeons, they went unrelieved. To-day any third-year student could correctly indicate the plan of treatment.

The treatment of urinary irritation dependent upon prostatic enlargements varies according to the precise cause of the trouble, the exact portion of the prostate affected, the degree of involvement, and the complications present. The essential of satisfactory treatment is a correct diagnosis. For the cases under consideration this can be obtained in a general way by the answers elicited to the six famous questions of Sir Henry Thompson. Interpret these answers, and an absolute diagnosis can then be more certainly arrived at by physical examination. Rectal exploration will determine the location, character, and amount of prostatic involvement. It can thus be ascertained whether there be induration or hypertrophy of the gland, and whether the latter presses backward to such an extent as to encroach upon the upper wall of the rectum. The presence of a prostatic abscess can also be verified by digital touch.

The exploration of the urethra and bladder can be conveniently made with a small flexible Mercier catheter. This should be introduced with all gentleness after the patient has passed water to his full extent. If the bladder has failed fully to empty itself, the amount of urine coming away through the catheter—the residual urine—can thus be arrived at. The elbow of the Mercier catheter will at the same time afford a tolerably good idea of the presence, size, and sensitiveness of any enlarged middle lobe of the prostate. The exploration by the elbowed catheter is preferable to the use of the soft-rubber, flexible Nélaton instrument. The latter will equally well gauge the amount of residual urine, but does not so delicately convey the impression furnished by the projecting enlarged lobe. Should further information of this body be desired, a metallic catheter or sound may be used. The impact of a hard instrument upon a swollen lobe is, however, apt to be painful. When possible, I am glad to be satisfied with a soft instrument.

The first indication of treatment, especially where the tendency to vesical irritation is as yet only threatening, is prophylaxis—warm clothing, flannel abdominal binders, protection against cold and dampness, and thick-soled shoes, with inner soles of cork, impervious to moisture. The dry warmth of an open fire will be found comfortable. The amount of fluids taken by the mouth should be moderate. None should be taken in the latter part of the evening,

before bedtime. The patient should be instructed to pass his water at regular intervals, and when obliged to urinate during the night he should rise from his bed and pass his urine in the upright position. Patients are often permitted to remain in bed supine and to pass water into a urinal. This, I think, is a mistake. In this posture the water is apt to be imperfectly voided, and some portion often remains as residual urine. The bladder is thus not entirely relieved—indeed, the retention of residual urine would seem to be favored. The sleep following such practice is not the sound and refreshing sleep which one afflicted with urinary irritation so imperatively requires.

In all bladder irritations dependent upon senile prostatic hypertrophy, an important indication of treatment, and one which greatly affects the man's comfort, is a free evacuation of the contents of the lower bowel. Especially is this the case when mechanical sluggishness of the bowel occurs dependent upon backward prostatic pressure. In most instances, the daily morning evacuation can be readily insured by the exhibition of a cascara pill or tablet, from three to five grains, or other gentle laxative, nightly at bedtime. Then in the morning, after breakfast, as the patient goes to stool, he should throw into the rectum just above the anus a small injection of one drachm, half glycerin and half water. The syringe best suited for this purpose is a hard-rubber urethral syringe, with a nozzle an inch long. This will usually act immediately, producing a satisfactory and easily voided stool, without the unnecessary prostatic irritation which may attend the use of a large enema.

When frequent urination depends upon enlargement simply of the middle prostatic lobe, but is unattended with annoying irritation, and when the urine is clear or nearly so, it may reasonably be inferred that the trouble is one of residual urine only, and that cystitis has not as yet set in. In such case, treat for residual urine, employing the Mercier or Nélaton catheters, as the experience of each patient may suggest. This may be done at first every other day, and then daily, preferably before the patient retires for the night. Very precise rules have been laid down regarding the frequency of this catheterization. We are told that when the residual urine amounts to three or three and a half ounces, catheterize once a day; if six or seven ounces, twice a day, increasing the frequency with the amount of residual urine. I think, however, that fixed rules should be modified, so as to give the patient the most comfort with the least catheterization. Too much bladder manipulation, the falling into the "catheter habit," is sometimes followed by bad results.

It is well, on each occasion when the urine is drawn off, to irrigate the bladder through the already inserted catheter with three or four ounces of tepid water, containing five grains of borax to the ounce, or an equal quantity of boracic acid. When the injected fluid comes away, carrying with it the collected vesical mucus, the viscus will be left clean, and the patient will usually enjoy a better night's sleep. In any case, should the symptoms become urgent, as evidenced by an increasing and distressing bladder irritability, aggravated by motion, with constant vesical tenesmus and desire to make water, the presence of a calculus may be suspected. The urine will then be found cloudy, turbid, and shreddy, with purulent deposit. In many instances the stone will be found to be encysted or impacted, as already described. It should then be promptly removed by operation. The one indicated would probably be the suprapubic—a high cystotomy. This procedure is almost devoid of danger, and can be readily performed. If calculus be present, it can be easily detected and removed. Should it appear desirable to take away any diseased and projecting portions of the prostate, prostatectomy can be done at once; although doubtless this will add greatly to the patient's risk. It would seem far better after removing the calculus to leave the prostate untouched, and to favor the formation of a vesical fistula through the lower part of the abdomen. By this new channel, or artificial urethra, the bladder can be regularly emptied by a short silver catheter, in the hands of the patient himself. It often happens, after a little interval, that the bladder acquires a habit of holding its water, and the urine accumulates until the level of the opening in the upper part of the bladder is reached.

At the present moment surgical in-

genuity is struggling with the problem of operative relief for the enlarged prostate. Several processes have been proposed and practiced. The chief of these are double or bilateral castration, vasectomy, suprapubic cystotomy with drainage through an abdominal fistula, or through a perineal incision, the different forms of prostatectomy, or removal of the whole or a part of the prostate, and the galvano-caustic operation of Bottini. These different operations have been made the subject of an exhaustive analysis by Professor Horwitz, in the *Philadelphia Medical Journal* of June 8, 1901. The conclusions of this surgeon are in favor of the operation of Bottini, in which two or three linear grooves are burnt into the prostate by the action of a platinum blade, brought to red heat by the electric current. This operation he considers applicable in the "beginning of obstructive symptoms due to hypertrophy of the prostate gland, and may be regarded as a means of preventing catheter life." It is said to be also indicated in all forms of hypertrophy "except where there is a valvular formation, or where there is an enormous overgrowth of the three lobes, associated with tumor formation giving rise to a pouch, both above and below the prostate gland." The operation can be done under cocaine, and is painless. Recovery is prompt, the patient being confined to bed from five to ten or twelve days. From these showings it would seem probable that the procedure of Bottini will be recognized as a permanent mode of relief in prostate enlargement, and will eventually command the confidence of surgeons.

A STATISTICAL STUDY OF VENEREAL DISEASES TAKEN FROM THE CASE-BOOKS OF THE GENITO-URINARY DISPENSARY OF THE UNIVERSITY HOSPITAL.

By H. M. Christian, M.D.,

Surgeon in Charge of the Genito-urinary Dispensary, University of Pennsylvania; Adjunct Professor of Genito-urinary Diseases in the Philadelphia Polyclinic.

During the ten years ending December 31, 1900, there were entered upon the case-books of this dispensary 6587 cases of genito-urinary and venereal disease. Of these 4890 were cases of venereal disease, the remaining 1697 coming under the general heading of genito-urinary affections, including enlarged prostate, vesical calculus, hydrocele, etc.

A further study of the venereal cases applying for treatment shows that they were divided as follows: Gonorrhea, 2140; chronic anterior urethritis, 449; chronic posterior urethritis, 253; stricture, 420; chancroid, 552; chancre, 440; secondary syphilis, 479; tertiary syphilis, 157.

As it is the universal practice in the dispensary to examine microscopically every urethral discharge, it can be stated that all the cases tabulated as gonorrhea were instances of specific urethral infection. The chief complication occurring in the patients suffering with gonorrhea was epididymitis, which was present in 198 cases—about nine per cent. All these did not develop while under our care, a very large proportion being affected already with the complication when they presented themselves for treatment.

This percentage of cases developing epididymitis may seem unusually large, and so it is when compared with private practice, where the proportion according to Taylor should be as low as three per cent; nevertheless it will appear small compared with the statement of Finger, who says that in 1844 cases of urethritis in his own hospital service, 548 developed epididymitis—29.9 per cent. Jullien gives the percentage among hospital patients as 15.2. The large increase in the number of cases of epididymitis found in hospital practice, as compared with private practice, is undoubtedly due to general carelessness on the part of these patients, and their inability to properly care for themselves even if they were so disposed.

A glance at the total number of cases of chronic anterior urethritis (449) and chronic posterior urethritis (253) recorded, shows that the reported ratio between these two conditions is not in accordance with the accepted views at the present day. Thus Finger observed that in 31 cases of chronic urethritis the anterior urethra was involved in 17, and the prostatic urethra in 14; and this ratio is approximately supported by the statistics of our service in recent years, shown as follows:

	1897.	1898.	1899.	1900.
Cases of chronic anterior urethritis...	40	39	53	74
Cases of chronic posterior urethritis..	36	21	30	36

The apparent discrepancy in the sum total for ten years' service, as noted above, arises most probably from the fact that prior to 1896 the exact localization of chronic urethritis, as determined by genito-urinary surgeons at the present day, was neither fully recognized nor practiced at the dispensary.

Regarding chancroid, our statistics seem to demonstrate that it is still a rather prevalent condition, at least among dispensary patients. In 1891 only five per cent of the cases were affected with chancroid, while in 1900, out of 574 cases of venereal disease, 85 (nearly 14 per cent) applied for treatment on account of this condition. This decided increase is in all probability largely due to the fact that in recent years there has been a marked increase in the foreign element attending the dispensary, composed principally of Hungarians, Italians, and Polish Jews.

Of the 440 cases of chancre observed, four were extra-genital, two occurring on the lip, one upon the forehead, and one on the neck.

The average period of incubation was from two to three weeks, the earliest being seven days; one being noted as late as eight weeks. In this relation it must be borne in mind that the class of patients attending the dispensary, and the promiscuous and frequently repeated sexual intercourse indulged in by them, render it very often impossible to determine with any degree of certainty a period of incubation.

Under the heading of secondary syphilis are included the cutaneous lesions classified as macular, papular, papulo-squamous, mucous patches, and rarely the pustular syphilides. About fifty per cent of the cases exhibited the primary cutaneous lesion known as the macular or syphilitic roseola; the remainder were affected with some variety of the papular lesions or with mucous patches. The pustular lesions of the skin were rarely encountered save in some instances of precocious malignant syphilis.

The most common tertiary lesion seen was the ulcerating gumma, chiefly occupying the region of the back and the upper third of the leg. Next to this in point of frequency was the non-ulcerating tubercular syphiloderm most commonly observed on the arms, face, and back. In nearly every instance of tertiary syphilis, investigation revealed the fact that the secondary lesions had either been ignored or had received scant treatment.

Has any advance been made during the past ten years in the treatment of these diseases? This is a question which naturally suggests itself in a paper of this character. Concerning acute gonorrhea we believe this much to have been accomplished: the disease is more scientifically studied and treated, and the patient thereby suffers possibly less personal discomfort than formerly. As regards the ultimate results attained in shortening the actual duration of the disease, we feel compelled to state, at the risk of being considered ultra-pessimistic, that little if any advance has been accomplished. A careful review of our case-books shows that in the great majority of instances gonorrhea in dispensary practice lasts as great a length of time to-day as it did ten years ago. As regards chronic urethritis, however, the results obtained under the more recent methods of treatment have been most gratifying. As a result of the exhaustive research of Finger into this subject, the disease is now studied from an anatomo-pathological standpoint. Exact localization of the diseased area is made in every case, the diagnosis of "gleet" being no longer considered either satisfactory or scientific.

Concerning syphilis our observations go to demonstrate pretty conclusively that this affection is at present a milder disease and is more easily controlled than it was ten years ago. In a majority of the cases so comparatively mild is the secondary outbreak, and so amenable to treatment is it, that it is almost impossible to get all the patients to remain under continuous treatment for any great length of time. I have been impressed with the number of men who, upon being pronounced to be syphilitic, have professed a keen desire to take their lives, but who after a subsequent course of treatment have declared syphilis to be a mild affection in comparison with gonorrhea. It is well to bear in mind that this very feature constitutes an element of danger, as it is apt to lead the patients to neglect continuous secondary treatment, thereby exposing them to the risk of subsequent tertiary manifestations.

The limitations of this article will scarcely admit of any extensive discussion concerning the treatment of venereal diseases employed in the dispensary. To narrate in detail the various methods employed in the

treatment of gonorrhea would be to give a history of that disease for the past ten years. Every method in vogue during that period has been put into practice. At the present time we have about settled down to the following plan, which we have found to be as satisfactory as any: During the first ten days or two weeks two drugs are employed as local treatment to the urethra, viz., protargol and permanganate of potash. As dispensary patients cannot employ daily irrigations of the urethra, two separate solutions are made for their use:

℞ Potassii perman., gr. ss;
Aq. des., ʒ viij.
M. Sig.: No. 1. Use as directed.

℞ Protargol, gr. x;
Aq. des., ʒiv.
M. Sig.: No. 2. As directed.

The patients are directed to flush out the urethra with six urethral syringefuls of solution No. 1 three times daily; this is followed immediately by the use of one syringeful of solution No. 2, which is held in the urethra for ten minutes. At the end of four days the permanganate solution is increased in strength to 1:4000, and the protargol solution increased to one per cent, or grs. xx to ʒ iv. After the second or third week main reliance is had upon the salts of bismuth, zinc, and lead, a very favorite prescription being the following:

℞ Zinc sulph., gr. x;
Bismuth subcarb., ʒij;
Sol. hydrastis, colorless, fʒss;
Aq. des., q. s. ʒiv.

At this time copaiba and oil of sandalwood are always given.

Under a routine course of treatment somewhat like the above, we find that the majority of the acute cases that get well do so in from six to seven weeks. No case is pronounced cured until there is a complete absence of clap shreds from the urine, after one week's cessation of all local treatment.

In cases of chronic urethritis where the disease is found to exist in the anterior urethra, and to depend upon the presence of a stricture or granular patches with subepithelial thickenings, the treatment consists in the passing of sounds three times a week, always following the withdrawal of the sound by an irrigation of silver nitrate increasing in strength from 1:8000 to 1:1000.

In cases of chronic folliculitis involving the glands along the floor of the urethra, the occasional introduction of a sound covered with an ointment containing iodine and iodide of potash, as recommended by Finger, has proved to be very beneficial.

In all cases of chronic posterior urethritis, recognizing that in the majority of instances the prostate is also involved, treatment to the urethra is always preceded by massage of the prostate. This having been done the total urethra is irrigated with nitrate of silver solution. Deep instillations of protargol 3 per cent, sulphate of copper 2 per cent, nitrate of silver 1 per cent, are of great value in chronic conditions involving the deep urethra.

Where there can be no reasonable doubt as regards diagnosis, all chancroids are cauterized with nitric acid, this procedure being supplemented by the daily use on the part of the patient of a dusting powder of iodoform two parts, acetanilid one part. As a substitute for iodoform, bismuth formic iodide powder has been used. As a valuable antiseptic and analgesic powder where much pain exists, we have found powdered chloretone to be of much service. In cases which show a tendency to phagedena, or where the chancroids are concealed beneath a long prepuce, 50-per-cent Labarraque's solution as a wash has proved very valuable.

In cases presenting the initial lesion of syphilis, the ulcer is kept as clean and free from irritation and infection as is possible. This we have found is best accomplished by washing the lesion in 50-per-cent solution of peroxide of hydrogen twice daily, followed by the application of a fine dusting powder, such as equal parts of boric acid and acetanilid, or stearate of zinc with acetanilid. No constitutional treatment is instituted until secondary cutaneous manifestations occur.

In the treatment of constitutional syphilis two types of the disease are usually taken into consideration: (1) simple benign syphilis with little or no tendency to relapses; (2) a more severe form with tendency to relapse and increase in the lesions. The first and more common type is generally easily controlled by the internal administration of protoiodide of mercury, one-third grain, in pill form, from three to four pills being given daily. This treatment is carried out for eighteen months. In the second form we endeavor to attain what is well known as the tonic dose of mercury, as suggested by Keyes. Here the patient takes an increasing number of pills from day to day, until the gums are touched or there is a

decided fetor of the breath. The number of pills requisite to bring about this condition is divided by two; the resultant constitutes the "tonic dose" of mercury for that individual patient. Where the internal administration of mercury is not assimilated, as shown by gastrointestinal disorder and persistent loss of weight, inunctions of mercury are employed.

In the treatment of tertiary syphilis mercury is always employed in conjunction with potassium iodide, chiefly in the form of the biniodide, in one-twelfth-grain doses. Iodide of potash is generally taken in from five- to twenty-grain doses three times daily.

During the early secondary stage a note is made on all cases from time to time regarding the weight of the patient, this being considered most important, as indicating the efficiency of specific treatment. Where this does not control the loss of weight, cod-liver oil and hypophosphite solution are added to the treatment.

TREATMENT OF RHEUMATISM AND ALLIED DISORDERS.

By D. K. Coverley, M.D.,
New York.

The realization of a long-felt want with respect to the production of a substitute for the salicylates marks an epoch of evolution in the treatment of rheumatism and allied disorders. Since the introduction of salicylic acid to the profession its efficiency has been materially counterbalanced by the occurrence of certain unpleasant concomitant manifestations and sequelæ during its employment. Among the more pronounced are generally those relating to the nervous, circulatory, and digestive systems, manifesting themselves by headache, tinnitus, cardiac depression, and complete anorexia, preceding a subsequent gastric irritation. This state of affairs necessitated a discontinuance of the treatment, and was in a measure directly responsible for the ultimate tardy recovery in consequence of the debility thus brought about.

Appreciating the importance of replacing the salicylates by some derivative free from their objectionable features, various attempts were made with more or less success, which resulted in the production of several compounds that promised to possess none of the above disadvantages. Subsequent investigation proved the contrary, however, and the resultant enthusiasm attending their adoption gradually waned. Later attempts were more successful in this direction, and in salophen these unpleasant features seemed to be overcome. This drug was found to produce none of the irritating effects of the salicylates, and is well borne by the stomach. It passes unchanged into the intestines, and here is decomposed into salicylic acid and paramidophenol; both of these contributing to its therapeutic action as an antirheumatic, antipyretic, and analgesic. Its efficiency as an antirheumatic has proved less pronounced owing to the comparatively small amount of salicylic acid set free; but as an antipyretic and analgesic it remains a most valuable remedy.

Finally, after further experimentation, aspirin was evolved. Chemically it is acetyl salicylic acid, appearing in crystals which are soluble in alcohol and insoluble in water. In contrast to salicylic acid, it is agreeable, with an acidulous taste, and devoid of the disagreeable features referred to. In the stomach it remains unchanged, giving rise to no irritation; in the intestine, however, where it is subjected to an alkaline medium, salicylic acid is gradually liberated in a nascent state; and it is probable that its absorption in this state is mainly responsible for its efficiency. After absorption it not only exercises its therapeutic action as an antirheumatic, but as an antipyretic and analgesic as well. Moreover, its prompt elimination is readily accounted for by the profuse sweats, with an increased elimination from the kidneys, attending the fall in temperature.

From the above brief *résumé* of its virtues it will be seen that aspirin is the most eligible remedy for the treatment of rheumatism in its acute forms. Aside from its employment in that disease, its use has been extended to various allied disorders which are so commonly met with by the general practitioner. The fact that aspirin has a well marked antineuralgic effect largely enhances its value, the more so as many neuralgias are due to the same etiological factor that exists in rheumatism. My own observations not only bear out the above statements, but confirm the mass of evidence now before the profession.

The following few selected cases I desire to submit with the view of elucidating its action clinically:

CASE I.—Mrs. F., aged fifty, was suddenly attacked with violent pains in the ankle- and knee-joints, and was slightly affected similarly in one wrist. This was quickly followed by a rise in temperature and an increase of pulse-rate. The joints became swollen, presenting the characteristic appearance. The patient was ordered to take salicylic acid in doses of fifteen grains each, three times daily. After the second dose she complained of a dull headache and a feeling of nausea, which was soon followed by ringing in both ears and difficulty in hearing. Having frequently to contend with complaints of this character in cases where the salicylates are used, I decided to continue the treatment for a while longer, but as each dose aggravated instead of relieving her condition, the further administration of the drug had to be suspended. About that time my attention was called to aspirin by a brother practitioner, who kindly tendered me a sample, which I decided to try. I put the patient on doses of 15 grains in wafers, and to my satisfaction an amelioration of the symptoms followed, with a decided improvement in the general condition. The troublesome disturbances mentioned above disappeared, and never returned. The doses were regularly continued until the pain and swelling had disappeared, and the temperature and pulse were normal. Subsequent treatment consisted of massage and other measures till the stiffness had disappeared, and the case was discharged.

CASE II.—J. K., male, aged thirty-five years, with a previous history of several attacks of rheumatism which had confined him to his bed, was seized with acute articular rheumatism of great severity. On the third day following its appearance almost all the joints were swollen, painful, and immovable, rendering him helpless. There was a moderately high temperature; the pulse was 120, full and hard; the tongue coated; and complete anorexia. Remembering the good results obtained from the use of aspirin in the previous case, the same line of treatment was followed. This consisted in the administration of 15-grain doses of aspirin, four times a day, in wafers, and the local application of oil of wintergreen. Gradually the pain and swelling subsided, the tongue cleaned, and his appetite steadily increased. His condition improved so rapidly that at the expiration of a week the administration of aspirin was suspended for a few days, but renewed later, and continued periodically for a week or more till a perfect cure was established.

CASE III.—E. R., male, aged forty-two, whose occupation, that of an iron-worker on large buildings, exposed him to all changes of the weather, had suffered up to the present time with lumbago, and now in addition complained of pain and swelling in the knee-joints. The severe pains in his back, which occurred almost daily, incapacitated him more or less for his occupation, and this with the thought of losing his position caused him to regard the future with the greatest apprehension. After relieving his mind of any such idea, I directed him to take a cathartic followed by the administration of 15 grains of aspirin every three hours. In three days' time he returned to tell me that his troubles were entirely relieved, and also a great deal of his fear with regard to prospects. After further directions regarding the periodical use of the drug he was discharged from treatment.

CASE IV.—Miss H., twenty-two years of age, called at my office last spring for the treatment of a badly swollen and inflamed wrist-joint, which caused excruciating pains upon the slightest movement. Aside from local applications I gave powders of aspirin, 10 grains each, to be taken four times daily. This treatment, as in the previous cases, resulted favorably, and at the expiration of five days I had the pleasure of seeing the patient for the last time, the pain and swelling having promptly disappeared and the general condition much improved.

CASE V.—G. F., male, aged twenty-five, had been under treatment by me previously for an acute attack of gonorrhea, and was progressing fairly when he ceased his visits. Shortly after this he presented himself with a very painful and swollen wrist-joint, in conjunction with moderate fever and transitory and migratory pains in and about other joints. Knowledge of his case and the existing symptoms determined the nature of his trouble immediately. After due attention to local treatment in the way of heat and fixation, the question of internal medication demanded consideration. Realizing the ill results following the use of the salicylates and the iodides in such cases, I decided to try aspirin and watch its action, as this was my first occasion to test its efficiency in this form of rheumatism. Following its administration there was a gradual decrease in

the severity of the disease, and at the expiration of ten days he was well on the road to recovery. In addition supportive treatment was ordered in the form of iron, strychnine, and arsenic. No microscopical examination was made in this case.

CASE VI.—W. F., aged sixteen years, rather poorly nourished and weak, was suffering from an attack of articular rheumatism in the knee- and ankle-joints, attended with considerable pain and swelling. The temperature and pulse were rather high, and the heart sounds muffled and indistinct. Aspirin was ordered in 10-grain doses, three times daily, and local applications were made to the joints. The following day failed to bring any marked improvement, so I ordered an increase in the dose to 15 grains. The temperature soon became normal, the heart sounds a great deal more distinct, and a general abatement of all the symptoms occurred. Finding his condition improved a reduction in the dose of aspirin to 10 grains was ordered, and following this there was an elevation of temperature, but not sufficient to call for an increase in the dose. From this time on the pulse and temperature remained normal, and the articular swelling disappeared, except a slight puffiness which subsequently yielded to massage. At the expiration of two weeks the case was cured.

CASE VII.—Mrs. L., married, aged fifty-two, rather stout, consulted me in regard to rheumatism of the hips, back, and knee- and ankle-joints of long standing, which compelled her to use support when going about. Like others of her habit, she was very constipated, with a slow and torpid liver. Treatment was commenced by ordering a free evacuation of the bowels, and this was followed by 10-grain doses of aspirin, three times daily. After this the improvement was rapid. On the fifth day the dose of aspirin was ordered to be taken twice daily for a week, and then once a day in the morning. This together with tonic treatment brought about a great change in the patient, and two weeks later she was able to move about without a support and attended to her household duties.

CASE VIII.—Mrs. R., married, aged forty-eight, consulted me for palpitation of the heart and irregular pulse, which caused her great anxiety. She had received treatment for this complaint at various times, but the treatment had always been directed toward the cure of a supposed indigestion. Subsequent investigation proved that she had suffered for years with intermittent attacks of headache, neuralgia, and muscular rheumatism. After placing her under treatment for the palpitation, she was asked to bring a specimen of her urine at the next visit. Accordingly a few days later I made an examination of the urine and found an excess of uric acid. The treatment consisted of aspirin in 10-grain doses once a day, combined with alkaline cathartics and occasional baths. At the end of two weeks she was dismissed completely relieved of all her symptoms.

CASE IX.—Miss L., aged twenty-five, was suffering from an attack of neuralgia radiating over the whole side of the face. These attacks, which first appeared over two years before, were becoming quite regular of late, and necessitated her absence from business. As the various remedies at her command failed to relieve her, she sought relief. After several attempts with other drugs, combined with local treatment, had failed, I decided that the case was of rheumatic or toxic character, and placed her on aspirin with an alkaline plan of treatment, and succeeded in curing the neuralgia. At the expiration of two months she had a return of the trouble, but with a renewal of the former plan of treatment the attacks disappeared, and up to the present time they have failed to recur.

Without entering upon a discussion of other cases I would say that in my opinion aspirin is the most serviceable antirheumatic and antineuralgic we have in this class of patients.

THE USE OF VERATRUM VIRIDE IN PNEUMONIA.

BY T. G. STEPHENS, M.D., PH.D.,
Sidney, Iowa.

Veratrum viride and its therapeutic properties were little understood until the last half century, although the rhizome and roots of its congener veratrum album were used before Hippocrates, and celebrated by the poets and historians of antiquity. Having been in the beginning of my professional life an interne for two years in a hospital, and after supplementing this early experience by forty-two years of private practice, I find on looking over the history of this period that in many respects the funda-

mental principles of medical science were as well developed at the earlier period as they are to-day. We bled for pneumonia and gave calomel, tartar emetic, and blistered *secundem artem.* Since that time I have had ample opportunities for witnessing many evolutions in therapeutics; following this course of treatment came a turning point which announced a new departure. About this time a new vegetable remedy was discovered and added to our repertory known as veratrum viride, which has a direct influence on the pneumonic process by lowering the pressure in the arteries and lessening the accumulation of toxic products.

American hellebore has the advantage over the majority of preparations used for the same purpose; it has fewer objectionable properties than almost any other medicine in the materia medica, rarely meeting with a special contraindication, operating promptly both upon the pulse and temperature, and does not act accumulatively. The probable explanation of this is supposed to be found in the natural activity of the patient's emunctory organs. I have relied on the veratrum treatment in cases of pneumonia for forty years.

What I mean by the veratrum treatment is placing it in the lead of all other remedies in the treatment of pneumonia, and the longer I use it the more favorably I am impressed with its extraordinary properties; and candor compels me to say, notwithstanding the counter-currents of opinion, that it is more efficacious in pneumonia than quinine is in ague, relapses and chronic cases seldom succeeding its use, and no anatomical lesions being left. Out of a series of fifty-four consecutive cases of pneumonia—not selected, but taken seriatim—treated with veratrum, I am able to report fifty recoveries and four "necessarily fatal" cases. Numerically they are as follows: (*a*) A woman, sixty-eight years old, whose hygienic conditions were faulty; (*b*) a woman, sixty-four years old, who had been suffering from tuberculosis for twenty-five years; (*c*) a man, seventy-eight years old, the greater portion of whose life had been spent in dissipation and drunkenness; (*d*) a woman, fifty-eight years old, who during the last twenty-seven years of her life had twenty-one attacks of pneumonitis; I treated her during the last nineteen. These cases had been living under the "scythe" and liable to be cut down at any time.

In the management of cases of pneumonia there are several cardinal principles upon which authorities differ because of unformulated dissatisfaction. The constant changing of medicines from day to day is one of the great causes of failure in the treatment of this disease. Pneumonia is a severe disease, especially with drunkards and the aged or infirm. The general practitioner meets with few diseases mentioned in the entire nomenclature so perplexing as pneumonia. It is not my province in the present article to write an elaborate essay on the physiological or chemical and therapeutical properties of veratrum viride, or argue any point, but to give my own personal experience in the veratrum treatment in the present affection. To give the action of American hellebore in detail would go beyond the limits of this article.

The medicine shows a particular predilection for the heart and arteries, its primary action being that of a spinal and arterial depressant, lessening the force and frequency of the pulse-rate and diminishing the frequency of the respirations. I do not mean to say that the good effect of veratrum is altogether due to its sedative properties, but its secondary or accessory action helps more or less.

Veratrum viride possesses diaphoretic properties in cases of pneumonia by its direct tendency to lessen the action of the heart and arteries, and at the same time opening the transpiratory glands, thereby breaking the chain of morbific action, the patient sweating from every pore. The close sympathetic connection existing between the cutaneous surface and the lungs and kidneys renders the employment of remedies which produce sweating proper auxiliaries for eliminating the toxins in pneumonia. Veratrum increases the flow of urine, which is sharply acid in pneumonia and contains some poisonous substances. The bowels as a rule are slightly relaxed, or at least they are not usually constipated, during the use of this remedy.

All the blood in the body must pass through the lungs, after reaching the heart,

before it can again be distributed; in health it makes a complete circuit in twenty-four seconds, and an entire revolution in two minutes. From the present deductions we cannot treat pneumonia with any degree of success without diminishing the functional activity of the lungs by remedies directed to the heart and nerve centers, producing as much rest as possible in the affected organ. The greater the amount of blood sent to the lungs the more the respirations are increased and the greater the dyspnea; a considerable portion of the lung performs its duty imperfectly. The greatest benefit derived from veratrum viride is in the stage of engorgement with blood, by rapidly arresting the inflammation, preventing complications and extensions. In the latter stages of the disease the good effect of veratrum is manifested in proportion to the pathological changes, preventing the extension of the morbid process.

Chemical science has revealed the fact that veratrum viride contains two characteristic alkaloids, viz., jervine and veratroidine.

Prof. H. C. Wood says veratrum viride is a powerful spinal and arterial depressant, exerting little or no influence upon the cerebral centers; it lowers the pulse-rate by a direct action on the muscle (jervine), and stimulates the inhibitory nerves (veratroidine); it diminishes the force of the heart-beat by a direct influence on the cardiac muscle (jervine), and produces a general vasomotor paralysis (jervine), more or less complete, according to the dose. Patients never get too old to take veratrum, but they do get too old to withstand pneumonia. If we divert the blood-stream the "heart is not so likely to fail as the ultra-stimulationists assert." The disagreeable nausea and vomiting and hiccough, which sometimes prejudices the use of the remedy, are generally caused by an overdose, and are as a rule relieved by placing the patient in the dorsal decubitus and discontinuing the medicine for a few doses. I have not yet known a death from its use. The medicine is not so efficacious when it produces nausea; it is best not to give it to that point in order to get its antipyretic effect, although nausea does not lessen its powers, for everything goes to show conclusively that when nausea does supervene the heart and arteries are more or less prostrated from its action upon the nervous centers, diminishing their influence, as when nausea or vomiting is induced we cannot sustain the action of the medicine with any degree of certainty and with any uniformity of blood-pressure.

In many cases I use veratrum in both sthenic and asthenic conditions. The veratrum treatment of pneumonia does not require any intricate formulæ. As the medicine is always administered in the fluid state it can be reduced infinitesimally if necessary at any time and given with precision. The reduction of the blood-pressure should be made gradually and not in excess. Veratrum is contraindicated in valvular diseases, fatty degeneration of the heart, gastritis, and peritonitis. When the crisis occurs during this treatment of pneumonia, decrease the dose in the ratio it was increased, and even the time between doses may be lengthened, continuing the use of the remedy until assured that it is not a pseudo-crisis.

In the treatment of pneumonia we have tried different tinctures and fluid extracts of American hellebore, but have gotten the most satisfactory results from Norwood's tincture, which in our hands has proved to be the most uniform in its action. We are not often called to see a case of pneumonia during the rigor or algid stage, but following the subjective symptoms there is fever, the temperature reaching 103° to 106° in less than twenty-four hours. If the patient is seen during the subjective symptoms and the temperature is appreciably elevated during the algid stage, the treatment may commence and the duration of the attack be aborted. I recommend the use of the following formulæ:

℞ Tinct. veratri viridi (Norwood's), f3j;
Vini ipecac vel spts. ætheris nitrosi, f3ij.

M. Sig.: Give every three hours in a little water, commencing with ten drops and increasing one or two drops each dose.

Or,

℞ Tinct. veratri viridi (Norwood's), f3j;
Syrup. scillæ comp., f3ij.

M. Sig.: Give every three hours in gum water, commencing with ten drops and increasing one or two drops each dose.

Or,

℞ Tinct. veratri viridi (Norwood's), f3ij;
Tinct. aconiti radicis, f3j;
Syrup. tolutana, f3iv.

M. Sig.: Give a dose every three or four hours, commencing with fifteen drops in a little water, increasing three drops each dose.

APPENDICITIS: WITH SPECIAL REFERENCE TO DIAGNOSIS AND TREATMENT.

By W. H. Mitchell, M.D.,
Los Angeles, California.

During the past decade so much has been written about appendicitis in all its varied forms and conditions that it would seem almost futile to attempt to throw more light on this disease. That more light is needed none will deny; yet how shall we glean this information, when hardly two physicians agree as to the best treatment for appendicitis? I frankly admit that no two cases of appendicitis are just alike or can be treated just the same; and that the successful treatment of any disease must largely depend upon the ripe judgment of the physician or surgeon in attendance. But it is the firm belief that in the treatment of appendicitis the pendulum has swung much too far toward surgery that leads me to write this article.

Is appendicitis a medical or surgical disease? Are there any pathognomonic symptoms by which we can certainly recognize acute inflammation of the cæcum and its appendage? What is the treatment applicable to the majority of cases? These are some of the questions I shall try to answer.

As you all know, appendicitis is a very old disease with a young name. Some authorities claim that the mortality rate, since the introduction of modern antiseptic surgery, is much less than formerly. But I think physicians will agree that if we eliminate all cases incorrectly diagnosed, all operations performed upon healthy appendices, it will so change our statistics that we shall be forced to only one conclusion: the death-rate from appendicitis for the past ten years has been greater than ever before! Then there are many cases of catarrhal appendicitis, operated upon early, which would have recovered just the same under skilled medical treatment. It is the knowledge of these facts which leads me to urge the profession to practice greater conservatism in dealing with this disease. For we all know that there are thousands of healthy appendices removed yearly, and credited to the brilliant achievements of modern surgery. These unnecessary operations so alter our statistics as to make them unreliable and misleading. If appendicitis were a non-operable disease, as typhoid fever is, the death-rate in the former would be much decreased. I admit that timely operations have saved many valuable lives, and shall soon indicate the conditions which point for surgical relief. That the knife has mutilated many persons and killed not a few I also concede. However, I appreciate its good services as much as any surgeon, if we can ever learn when to use it, and when to abstain from its luring temptations.

Ten years hence appendicitis will be classed and treated as a medical disease. The surgeon will only be called in exceptional cases, or when some complication occurs. Fewer operations will insure lessened death-rate, avoid many hernias and fistulas; and our patients will stand a better chance to reach the allotted span of life, "three score and ten." Skilful medical treatment will take ninety-five per cent of our patients through the first and second attacks; then when our patients are fully recovered from the second illness, we can advise them to have their appendices removed, at a minimum of risk, with the assurance that they will have no further trouble from their unruly appendages. In this way the mortality roll may be reduced to about five per cent, and the disease divested of its present fear.

But in this disease as in any other the surgeon may frequently be needed. In my judgment there are three conditions or complications which may arise during the course of appendicitis, when it is both wise and prudent to call the surgeon in consultation.

First, as I have already intimated, if a patient is subject to frequent attacks of appendicitis, it is our duty to inform him as to his condition, and advise him to seek surgical aid as soon as he fully recovers. The prognosis is very favorable, if operated upon between attacks, or when resolution is established. In the hands of good surgeons the mortality rate is almost nothing if the operation is performed when there is no inflammation in the appendix. Therefore we need not hesitate to advise our patients to submit to the knife when the conditions are favorable, as above indicated.

Secondly, if during the course of the disease the symptoms indicate suppuration, gangrene, or autoinfection, as high fever, rapid pulse, weakness, and general de-

pression, together with the local signs of tumefaction or fluctuation in the right iliac region, then call the surgeon and have him perform a celiotomy, let out the pus, and establish drainage.

Thirdly, in a few cases perforation is inevitable. If we are lucky enough to see our patient at the time it occurs, we must hasten him to the operating table, have the surgeon remove the appendix, and flush out the abdominal cavity with saline solution. In the meantime use heroic stimulation. But perforation is the rare exception in this disease, not nearly as frequent as in typhoid fever, and we are never justified in operating to prevent this complication.

Having classed appendicitis as a medical disease and thrown out a few hints of conservatism, I now wish to speak of the diagnosis and medical treatment. I shall say nothing about the etiology or pathology of this disease. The profession is agreed on its pathology already, and it makes no particular difference to our patients if each physician has his own theory in regard to the cause of appendicitis. What we want, and our patients too, is a lower death-rate, and this can only be attained by accurate diagnosis, faithful nursing, and scientific medical treatment.

To the careful practitioner who arrives at conclusions by a process of elimination, the diagnosis of appendicitis is not usually difficult. Pain, tenderness, and rigidity in the region of the appendix are three pathognomonic symptoms. In the right iliac region a fulness or tumor may appear with impairment of resonance over McBurney's point. The right thigh may be partially flexed on abdomen, and the patient may prefer to lie on the affected side, or in the dorsal position. Movements, pressure, or deep respirations increase the abdominal pain. Frequent attempts at urination often occur, an effort of nature to relieve the pressure. The patient is often a male under thirty, and he may complain of nausea and vomiting, thirst and anorexia, restlessness, and paroxysmal attacks of agonizing pain. If to these subjective symptoms we may add the objective signs of fever and constipation, quick and tense pulse, respirations shallow and thoracic, urine scanty and high-colored, face anxious and painful, we need not hesitate in our diagnosis.

It is well, however, to exclude a few diseases which simulate appendicitis, by comparing the symptoms which differentiate one disease from another. In acute intestinal obstruction fever is usually absent. The nausea and vomiting is more severe than in appendicitis, and it soon becomes bilious and stercoraceous. The stools consist of mucus streaked with blood, and flatus is often entirely absent. We find the abdominal tumor more frequently on the left side. Pain in abdomen is more constant than in appendicitis, and the countenance expresses greater anxiety and solicitude. Examination by rectum may reveal a fecal plug, bands, tumor, or some mechanical obstruction. If the physician has previously excluded hernia, these symptoms will enable him to differentiate acute intestinal obstruction from appendicitis.

In typhoid fever, the step-ladder temperature, the previous history, the slow beginning, the enlarged spleen, the epistaxis and diarrhea, the rose spots and headache, the brown tongue and dull countenance, and above all the Widal test—these are sufficient signs to make a correct diagnosis.

I do not think it necessary for me to mention the varied pelvic inflammations of women, bilious colic, acute indigestion, or enterocolitis, as all these diseases are easily separated from appendicitis by the careful process of elimination.

A true diagnosis being established, our treatment becomes the all-important question. As the ultimate object of any treatment is to preserve life and restore disordered organs to their normal function, it is our duty to practice conservatism whenever possible. We should not mutilate our patients or remove their organs, unless it is absolutely necessary to relieve suffering or save life. When we have learned to put ourselves in our patients' places, we shall do less cutting and guessing, and study our cases more thoroughly and treat them more intelligently. I have great faith in medicine judiciously administered. If we use fresh drugs, and prescribe them scientifically, we are sure to see favorable results. Nature often needs only a little assistance to work a miracle. And the physician or surgeon must work with nature if he would be scientific and successful. When we can perceive what nature is trying to do and assist her, we have struck the harmonizing cord in the healing art.

In appendicitis, as in any other disease, complete rest of mind and body is the first essential requisite. See that your patient reposes in a quiet, well ventilated room. Insist that he commit all his cares and responsibilities to your keeping. Assure him that his disease is not fatal, and that you will see him safely restored to health, if he will follow your directions. Inspire his courage and retain his confidence. Remember that rest is nature's great repair shop, where the tired organs recuperate and regain that harmony, one with the other, which is so essential for what we call health.

Next to rest and quiet repose comes diet, or rather the abstinence from food, both liquid and solid. For the first twenty-four to forty-eight hours it is best not to give any nourishment per os. The alimentary canal is already filled with waste products which must be evacuated before food is taken. Besides, nourishment, if taken too early, usually aggravates the nausea and retching which are so distressing in this disease. Later, when the stomach and intestines have been thoroughly cleansed, flushed, and rested, in the manner I shall soon indicate, we may allow the following foods in moderation: malted milk, Pasteurized fresh cow's milk, peptonized milk, peptonized milk gruel, egg-nog, panopeptone, and other light easily digested liquid foods.

Urge your patient to drink lots of water. Instruct the nurse to season the milk and gruel well, so your patient will be thirsty. Salt is a good antiseptic. Add two teaspoonfuls of medicinal peroxide of hydrogen to each glass of water. Have all the drinking-water distilled or boiled. If the patient can only take a small quantity of water at a time, give him the peroxide of hydrogen just the same—a teaspoonful in a little water every half-hour. It cleanses the stomach, tones the nervous system, increases urinary secretion, and is antiseptic.

Thus far our treatment has been very simple and along nature's lines. Perfect rest of mind and body, no food to irritate stomach and intestines until they are well cleansed, and plenty of pure oxygenated water to assist the action of our medicines, are three factors indispensable to the welfare of our patients.

We now come to the question of more specific treatment. The alimentary canal being filled with waste products and millions of pathogenic bacteria, we should treat it as a surgeon treats an infected wound: cleanse it, wash it out, and use antiseptics and disinfectants. Nothing does this quite as thoroughly and efficiently as calomel and Epsom salts. Give one-tenth of a grain of calomel every half-hour for twelve doses, then one teaspoonful of magnesium sulphate every hour until bowels move several times. If the stomach rejects the salts, give it by the rectum. The colomel acts as a germicide, hastens the bile along the duodenum and jejunum into the ileum and colon, where it acts as an antiseptic along with the calomel, quiets the tumultuous stomach, and assures a more thorough action from the salts. If nausea is a very distressing symptom, I give cocaine or chloretone with the calomel and apply counter-irritation over the stomach. With this treatment you can effectually open the bowels in from eight to twelve hours, and do it gently. You have thus eliminated the accumulated waste in the intestines, together with toxins and millions of dangerous microorganisms. The main sewer is now open and well flushed out with an antiseptic solution. Keep it open during the full course of the disease. Your patient now feels much better. The pulse is slower, fever reduced, and the bacilli and their poisonous products partially washed away. Now begin to use your true antiseptics. Salol is the best; it inhibits bacterial growth and multiplication in the digestive tract. I usually order ten grains of salol and twenty of bismuth subnitrate every four to six hours. Of course, we must watch the urine daily, and if the kidneys become irritated, reduce the dose or use some other drug, such as naphtol, bismuth subgallate, silver nitrate, or euthymol. If appendicular pain is severe apply hot applications to abdomen, and if necessary give hypodermic injections of morphine. But do not forget to give a grain of calomel per os at the same time the injection is given, followed in eight hours with appropriate doses of salts. Under no condition allow the bowels to become locked. I find that if we keep them freely open during the full course of the disease, the pain is not nearly as severe, and the patient will often bear it without any opiate. And what is still better, the complications of suppuration, gangrene, or perforation are comparatively infrequent, a

condition highly pleasing to both patient and physician.

Let us consider for a moment how the cure has been consummated. We have removed the cause of the disease and nature has done the rest. Our medicines have cleansed and disinfected the digestive tract, inhibiting the multiplication and growth of bacterial life. Ptomaines and toxins together with millions of bacteria have been dislodged and cast out of the intestinal canal. This wholesale elimination of disease germs and their poisonous products has enabled nature to cope with the remaining bacilli in the appendix. The white corpuscles of the blood migrate through the walls of the blood-vessels and attack their microscopic enemy in the appendix.

In conclusion let me emphasize a few salient points:

1. It seems fairly clear that appendicitis should be usually treated as a medical disease, unless suppuration, gangrene, or perforation occur.

2. We are never justified in advising an operation while the appendix is inflamed, just to prevent complications.

3. If accurate diagnosis and skilful medical treatment were applied in every case, these complications would be infrequent and the death-rate greatly diminished.

4. In recurrent appendicitis it is our duty to advise removal of the appendix between attacks.

5. Imagine yourself in your patient's place, and treat him as you would wish to be treated yourself.

TREATMENT OF ACUTE PERITONITIS.

For ten years ROBINSON *(American Journal of Surgery and Gynecology,* April, 1901) has practiced anatomic and physiologic rest for acute peritonitis.

Anatomic rest is sought by the patient, who is forced by pain to lie in such a position that the muscles adjacent to the peritoneum are put at rest. In short, the patient is glad to go to bed to secure anatomic rest —a quietude gained by lying on the back with the skeletal and muscular system immobile.

Physiologic rest, the exact quietude of the tractus intestinalis, is the great remedy in acute peritonitis. The bowels should be placed at rest, by allowing no food or fluid to pass the mouth; by keeping the patient absolutely still on the bed, not rising even for defecation or urination; by giving small doses of morphine sulphate (1/16 grain) at intervals of two to four hours; by applying continued cold to the abdomen by rubber tube coil, or continued heat by means of large corn-meal poultices; by employing rectal injections to slake the thirst—wet gauze also may be applied to the lips, but ice should never be allowed; and by nourishing the patient per rectum with liquid foods. Robinson has fed patients for weeks per rectum, and by this method saved them.

Cathartics, Robinson says, should not be given in acute peritonitis, nor should food per mouth.

This author finds the application of this treatment very useful in cases of acute appendicitis. The operation for appendicitis should be at a selected season. Its course can be regulated, controlled, and modified by the physiologic and anatomic rest. Appendicitis is acutely dangerous only when its infectious material extends to the enteronic or diaphragmatic region.

The author urges his readers to try physiologic and anatomic rest for the tractus intestinalis during acute peritonitis (especially in appendicitis), and says they will be surprised at the rapidity and number of recoveries.

SURGICAL TREATMENT OF GASTRIC ULCER.

LUND says in the brief summary of the indications for surgical treatment of gastric ulcer *(Boston Medical and Surgical Journal,* June 6, 1901) that in perforation immediate operation is absolutely indicated; that in cases in which the symptoms fail to yield after medical treatment for a reasonable period, operation, consisting either of excision of the ulcer or gastroenterostomy, should be performed, and this before the patient has become so exhausted as to render surgical intervention dangerous; that in hemorrhage, where slight, frequently repeated bleeding promises to produce grave anemia or exhaustion, similar early operation should be done; that where a patient has suffered more than one copious hemorrhage operation should be performed, and the extent and nature of the procedure should be decided upon according to the power of the patient to withstand operative manipulations, and the conditions found during the progress of the operation.

The Therapeutic Gazette

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Leading Articles.

THE VALUE OF SEA AIR AS A CURATIVE AGENT IN SCROFULOUS CONDITIONS.

As an evidence that physicians of the present day take a wider view of means of treatment than ever before we have only to point to the fact that patients are relieved of various maladies very frequently by resorting to healthy climates instead of the endeavor being made to cure them by the administration of drugs. While in many instances drugs must be given, if successful results are to be attained, the skilful physician always bears in mind that natural methods of cure are far superior from every point of view to those which require the administration of vegetable or mineral substances possessing therapeutic properties. Indeed, at the present time it would seem as if there is a danger that the profession will rely too much upon climatic change for the cure of tuberculosis of the lungs, with the result that many patients are sent to portions of the world which are supposed to be of benefit to those suffering from pulmonary tuberculosis, who are too far advanced in the disease to gain any material good from their travels. While the popularity of these health resorts for the cure of pulmonary tuberculosis is constantly increasing, and deservedly so, there are certain other climatic influences which are of value in disease which are not receiving the attention they deserve, and one of these is the use of sea air and sea bathing for children who are suffering from malnutrition, enlargement of their lymphatic glands, and the early stages of bone disease. Or, in other words, this climatic influence is of the greatest possible value for children who are suffering from what we were wont to call at one time "scrofulosis," but which owing to the advance of pathology has proved itself to be merely another form of tuberculosis.

It is true that in the large cities of the United States which are scattered along the seacoast, efforts are made by charitable persons during the summer months to obtain for the children of the poor sea air, either for a number of hours or for days at a time. But these efforts are far below what is needed, and hundreds of children are unable to obtain the benefits of this change.

On the continent of Europe, where tuberculosis and scrofulosis are even more widely diffused than they are in this country, various efforts have been made to provide the children of the poor with sea-air treatment, and the city of Paris maintains at its own expense at Berck-sur-Mer about 1034 beds for scrofulous and rachitic children, and further than this, the beds are kept actively engaged all the year round and are not simply occupied during the summer season. So, too, at the same resort, the Rothschild family provide gratuitous treatment to 100 children, both summer and winter, and a number of other sanatoria are scattered along the seacoast of France, most of which are under the direction of the "Assistance Maritime des Enfans Scrofulous et Rachitiques." In England there are only about 300 beds devoted to similar purposes. In Italy there are also seaside sanatoria for this class of patients.

We have mentioned these facts because it is our desire to emphasize the importance of sea air as a remedial measure in the treat-

ment of conditions named, both for the poor and the rich. As a matter of fact there are few drugs which do material good in these conditions, and certainly none of them which approach seaside resorts in their beneficial tendencies. So much is this the case that quite recently, in an address before the British Congress of Tuberculosis, Sir Hermann Weber urged upon British physicians the necessity of sending their patients more frequently to the seaside, and, for the benefit of the poor, suggested that an association for the erection of seaside sanatoria should be formed as a subdivision of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis. As Sir Hermann well points out, permanent cures in many instances, to be effective, can only be obtained if the patient remains subject to the climatic influence for several months rather than several days. He also combats the view that these sanatoria are only of value during the summer months. On the contrary, they possess an almost equal value during the winter, and even though the patients may be kept indoors by stress of weather more frequently in winter than in summer, it is nevertheless a fact that their circumstances at the seaside are far more health-giving than are their conditions at home.

CARBOLIC ACID GANGRENE.

Some months ago we published an editorial in the THERAPEUTIC GAZETTE upon this subject and accompanied it by an illustration taken from the *American Journal of the Medical Sciences* showing extensive gangrenous change in the fingers produced by wrapping them up in weak solutions of carbolic acid. Since that time our attention has been called to this accident a number of times, and while cases of this kind are not commonly reported, we find two such recorded in the *Münchener Medicinische Wochenschrift* of August 6, 1901. In the first instance a man of twenty-four years received a small injury to a finger of the right hand. As the injury was very slight, the finger was simply bound up in carbolized water. Two days later, when the dressing was removed, the part was mummified. There was a distinct line of demarcation at the first joint, but beyond this there was not any degenerating change. In the second case a man of twenty-five injured the second finger on his left hand, and it was also wrapped up in a weak solution of carbolic acid. On the second morning a similar line of demarcation to that noted in the first case developed, yet the strength of the solution in both cases was not over two per cent. Fischer, who reports these cases, is evidently not familiar with the cases which we mentioned in the editorial to which we have referred. It will be remembered that in this editorial we pointed out the fact that while weak solutions of carbolic acid applied to wounds upon the surface of the body rarely cause untoward effects, it was by no means uncommon for weak solutions of carbolic acid applied to the fingers or toes to so interfere with circulation as to cause gangrenous change, and that this accident occurs with sufficient frequency to make this popular form of dressing not only a dangerous one, but one which is to be carefully avoided if suits for malpractice are not wished for.

THE USE OF TUBERCULIN IN MEDICINE.

We have more than once touched upon this subject in the editorial columns of the GAZETTE, and quite recently we have expressed the view, to which we still adhere, that tuberculin ought not to be employed as a therapeutic agent for human beings, and that in our opinion its use as a diagnostic agent is usually, if not always, unnecessary, and perhaps unwise. There can be no doubt that with this view a large number of the profession disagree, and some of this number have had so much clinical experience that we must regard their opinions with great respect. Those of our readers who read an earlier editorial upon this subject will remember that we entirely agreed with those who insist upon the value of early recognition of tubercular infection in relation to the important question of climatic or other treatment.

It is true of all diseases that their therapeutics is easier if they are recognized early than if they are recognized late, and in no disease is it so true as in the one which we are now considering. Those who insist, therefore, upon the value of the earliest possible diagnosis insist upon a fact which

every one is willing to admit, and we would not for a moment be misunderstood in regard to this important matter. At the same time, we cannot help feeling that in a very considerable proportion of cases the use of tuberculin to determine the presence of tuberculosis is unnecessary, because the manifestation of the ordinary signs of early tuberculosis is often present so clearly that he who runs may read. In the very doubtful cases where the physician is unable to determine from the symptoms or the physical signs that tuberculous infection has taken place, and yet believes that there is a suspicious focus in the lung, we believe that climatic treatment should be resorted to at once on the principle that even if tubercle bacilli are not rapidly multiplying, the condition of the lung is so favorable to their growth and multiplication that it ought to be treated by climatic measures at once.

Certain instances may arise in which important business arrangements may be so seriously interfered with by a forced residence at a high altitude that the patient may be willing to subject himself to the hypodermic injection of tuberculin in order to determine positively whether his lungs have become involved; and if he desires a definite statement and insists upon it, it goes without saying that this test is sufficiently accurate to provide his physician with valuable information.

The only question which could possibly arise in such a case would be as to whether any damage can be done by the use of this substance, and the concensus of opinion seems to be that the chance of damage is not very great.

Of course, we are not referring to the employment of the crude tuberculin, which was first brought to the attention of the profession by Koch in the autumn of 1890. As Heron has recently said, "there took place in that autumn one of the most remarkable events that mark epochs in the history of medical science." Yet before the end of the following spring the remedy had to a very great extent fallen into disuse, and was condemned as loudly as it had been welcomed, and part of this condemnation was due to the stand taken by Virchow, who thought that he had seen a number of instances in which its employment had been very distinctly harmful.

The newer tuberculin has, however, none of the radical objections which were attached to the earlier and less reliable form. In regard to the employment of this more modern tuberculin, Otis, of Boston, has recently published in the *Medical News* a paper, which he read before the American Climatological Society, which contains results obtained by testing sixty-two additional cases over and above those upon which he has previously reported. He had two objects particularly in view. The first was to determine how many cases of known syphilis react to tuberculin, and secondly, to determine how reliable the test is in suspected or incipient tuberculosis both of the lungs and of other organs or portions of the body. The tuberculin which he employed was Koch's imported, and diluted to a one-per-cent solution, so that one-tenth of a cubic centimeter equaled one milligramme of the original product. The patients were walking cases in all instances, and in none of them were any serious or alarming symptoms present as a result of the injection, thereby confirming Otis's opinion that small doses up to 10 milligrammes of tuberculin are not harmful. There was sometimes a little soreness at the point of injection for one or two days, and in from six to twenty-four hours after the injection there was a rise of temperature and the patient complained of marked weakness, sensations of heat and cold, nausea, pain in the back and limbs, headache, sweating, sleeplessness or somnolence—a general "miserable" feeling. These symptoms constituted what Otis considered a reaction. He believes that this chain of symptoms is more important as indicating reaction than the mere development of temperature.

Now it is this class of symptoms which we believe it is unnecessary and unwise to produce in a great number of cases. Certainly, they ought not to be produced where there are definite and distinct changes in the lung which can be recognized by ordinary physical signs and careful examination.

Otis has also determined that in a very considerable number of cases of syphilis a reaction takes place even if tuberculosis is not present, although he does not think that as large a proportion as one-half of syphilitic cases do so react. Nevertheless, it seems to us that this is a possibility which if ignored may give very false impressions as to the presence of tubercular infection. Furthermore, it is interesting to note that

out of eight cases in which the physical examination showed sufficient evidences of tuberculosis to make a diagnosis, or in which tubercle bacilli were found in the sputum, he had four reactions and four failures to react, or, in other words, half and half; and in eighteen cases of suspected tuberculosis there were six reactions and twelve failures, and one of these reactions occurred in a case in which it was doubtful whether any disease existed, either tuberculous or syphilitic in nature.

As Otis well says, "it shakes one's confidence to use tuberculin in a case which is manifestly tuberculous and to have the case fail to react."

The paper of Heron which we have quoted, and which is printed in the London *Medical Press* of August 28, 1901, expresses the belief, without the mention of definite statistics, that tuberculin is of diagnostic value and that its characteristic reaction occurs wherever tuberculosis is present. Heron has never seen it produce any evil influences, either upon the kidney or upon any other portion of the body. He cites the experience of Dr. France, who administered tuberculin to fifty-five insane patients in order to determine if any of them were tubercular. Thirty-four of these eventually died, and twenty-nine of these thirty-four came to post-mortem examination, when active tubercle was found in every case. Ten of the fifty-five patients did not react; five of these at death were found healthy, and five remain still alive and well. While these cases of France indicate that tuberculous patients react to tuberculin, they do not show that non-tuberculous patients do not sometimes so react, even if they are not syphilitic, nor do they prove that tubercular patients always react, and therefore we feel inclined to adhere to our previous opinion in regard to this matter, namely, that tuberculin had better not be employed as a diagnostic agent unless some peculiar conditions exist which make its employment advisable. Secondly, that the reaction produced by it in any patients who have tuberculosis exposes them to an amount of discomfort and illness which hardly seems justifiable, if physical signs can be relied upon, to determine their condition. Thirdly, that in all patients who show physical signs indicating tubercular infection, it is best to treat them as cases of tuberculosis, since, even if they do not have this disease, they will be benefited by this method, and if they do have it will be as well treated as if they had been exposed to the disagreeable symptoms that we have named.

THE CORSET AS A THERAPEUTIC AGENCY.

It has been so long the custom to attribute to the corset and to high-heeled shoes the majority of the ills to which women are subject that a defense of one of these maligned agencies is both novel and refreshing, particularly so since the champion in this case appears in the person of a woman doctor, an assistant surgeon to the New England Hospital of Boston. Her contribution on the subject, interesting, instructive, and almost convincing, is entitled, "A New Factor in the Etiology of Visceral Ptosis; the Relation of the Modern Corset to this Factor." This title would lead us to suppose that Dr. Vietor had given one more futile kick to a mechanical cosmetic that the profession has unanimously and unavailingly condemned for so many years, and this impression is at first corroborated, since the older forms of the corset are condemned without qualification.

Dr. Vietor, while giving due weight to the importance of traumatism, increased abdominal pressure, and relaxed abdominal walls, as factors in the development of visceral ptosis, notes that a large number of patients suffering from this affliction exhibit a lumbar spine that is in a condition of more or less marked lordosis, or else that equally departs from the normal by being more or less straight and accompanied by lessened obliquity of the pelvis. This straightening of the lumbar spine and lessened obliquity of the pelvis she believes is both a cause and an effect of visceral ptosis. Attention also is called to defects in nutrition in childhood, such as are, for instance, dependent upon rachitis or faulty position, predisposing to ptosis.

The Doctor goes on to say that should the girl survive this danger period—*i.e.*, that of childhood and adolescence—she is again threatened by the putting on of corsets that constrict the waist, or, if she escape the corset, by the putting on of long skirts that constrict and drag upon the unsupported

point of departure where the skirt-band encircles the waist. It is noted that woman's waist is now, as it has been for a long period, located over the soft ribs. Constriction at this point is likely to displace the transverse colon. This constriction is particularly exerted by a waist-band. Even if the skirts are girded up from the shoulders this will result in atrophy or insufficient development of the shoulder girdle muscles and flattening of the upper chest, with more or less marked compensatory curvature of the spine.

As a conclusion, it is asserted that the treatment of visceral ptosis should begin in infancy and should never be lost sight of at any age.

Thus far it would seem that it is quite impossible for a girl to dress in the ordinary manner without developing in later life visceral ptosis, a condition of affairs not even satisfactory to the surgeon, since operative procedures for this condition have not been attended by brilliant success. Dr. Vietor, however, illumines this gloomy picture with a ray of hope. She exhibited before the Suffolk District Medical Society a number of corsets, beginning with those of an older date, made up of a straight band with a constriction at the center, and a flare upward and downward from that point, a model that tends to increase abdominal pressure. The next type exhibited, it was said, is that worn even now by the majority of women. It has a low bust and short hip, permitting a greater amount of trunk freedom, but it has the same upward and downward flare with the waist constriction. A further development consists of a special flare, or kind of pocket, to accommodate the hips, with a back comparatively straight across. These older forms distinctly promote the growth of a flat back and a prominent abdomen.

The present corset is described as follows:

"The radical change is that, instead of taking the waist line for the point of departure, it takes the anterior line of the trunk; this you will hear spoken of as the 'straight front' corset. The anterior line of the trunk is not absolutely straight, but it is a great advance to have it assumed to be straight instead of constricted like an hourglass. Again, the abdominal flare has been differentiated in three directions; the front has been made flat; a gore has been put in the side to allow for the prominence of the hip; and another gore has been put in the back to allow for the prominence of the sacrum. Again, the construction of the front of the corset has been changed, so that, instead of being made in one piece, it is made of a series of narrow, bias pieces that run obliquely from the front of the abdomen upward and backward toward the spine. It reminds me a little of the external oblique muscle of the abdomen. This change of construction does two things—it prevents the stretching of the anterior part, consequently there is not the tendency for the abdomen to lift up the front of the corset as it does in the older styles; and, second, the tension of the corset is in the direction of these bias pieces, making the lower part of the front, not the whole of the front, the special point of departure for support.

"Put this corset on a patient, placing the bottom of the front just above the symphysis, and from below draw up the lacings in the back till the lower third of the corset fits the patient snugly, and watch the result. The first thing you will do is support the abdominal wall and hold up the viscera; next, you will notice that you have increased the obliquity of the pelvis; instead of the symphysis riding upward and the sacrum downward, you have the sacrum thrown upward and the symphysis downward. Then you will see you have thrown the center of gravity forward so that now it is easy for the patient to rest her standing weight forward on the arch of the foot instead of backward on the heels. Look again, and you will see the lumbar spine resume its supporting power, and the patient can now throw back her shoulders, expand her upper ribs, and carry her chest erect. It is an easy matter now with a separate lacing to adjust the upper third of the corset to fit the new carriage of the chest. Then, with a third lacing simply hold the waist as it falls into place, with the abdomen and chest fitted. There is the same old possibility of evil if the waist line is constricted. I have heard of one case causing ecchymosis of the abdominal wall in this way."

Dr. Vietor further says: "The ideal corset has not appeared, but allowing for our present methods of woman's dress, a distinct advance has been made in some adaptation of the corset to physiological

function. To risk a bull, the ideal corset is no corset, but that implies such large changes in women's habits and dress as to be foreign to this paper."

The observations of Dr. Vietor are both timely and sensible. A careful perusal of her article shows that she is not the champion of the corset. She advocates that form of trunk compression that seems least likely to lead to serious results.

It is scarcely to be hoped that her article will have a more preponderating influence in modifying the female fashions that has hitherto characterized scientific contributions on this subject. It is quite certain that it will lead at least some physicians to recommend some such form of support in place of uselessly condemning the entire system of waist compression.

Reports on Therapeutic Progress

EMPYEMA.

HARTWELL concludes an interesting paper on this subject in the *Medical News* of July 13, 1901, in the following words:

1. Children are especially liable to empyema following pneumonia. Unless promptly relieved by drainage of pleura the prognosis is bad. With such relief the prognosis is good.

2. Pneumonia causes empyema in fifty per cent of the cases, and such cases are of severe type.

3. Tuberculous family history exerts little influence on empyema.

4. In about one-sixth of the cases the empyema is sacculated.

5. The pneumococcus is found in fifty per cent of the cases where examination is made, the streptococcus in 33⅓ per cent, the staphylococcus in eight per cent, the tubercle bacillus in four per cent, and no bacterium in sixteen per cent. The pneumococcus produced the most virulent infection in his series.

6. Chloroform was the anesthetic of preference. Deep narcosis is contraindicated, owing to the danger of pus being drawn into the other lung from a ruptured bronchus.

7. In adults with general empyema two inches of the seventh and eighth or eighth and ninth ribs in the posterior axillary line should be resected; in children the same length of the seventh rib. Simple incision, with our present knowledge, is rarely advisable.

8. Operation is indicated as soon as diagnosis is made.

9. Irrigation of the abscess cavity with bichloride solution 1:5000, or carbolic acid 1:100, is indicated, unless drainage is perfect and no sepsis is present. In children the solutions may be weaker.

10. The mortality from the empyema proper was fifteen per cent. We may hope to reduce it to one-half that number by earlier and more radical treatment.

TREATMENT OF ACUTE PERITONITIS.

In the *Northwestern Lancet* of July 15, 1901, BELL reminds us of the well known fact that every case of peritonitis, regardless of the extent or character of the inflammation, should be put to bed, and absolute rest and quietude enjoined. The food should consist only of liquids, peptones, somatose, beef juice, egg albumen and whey, the two latter being combined. No food should be administered during the first twenty-four or forty-eight hours, especially in cases of perforative peritonitis. Milk should not be given, owing to the irritating effects of the casein in this disease. Stimulants, preferably rye whiskey and champagne, should be given as indicated. Later, if required, nutritive colon enemata may be used, but unfortunately the marked distention present so disturbs the intestinal circulation as seriously to interfere with absorption, and consequently they are of little value. We should be guided in our management and therapy in a given case by the location, character, and extent of the inflammation.

Peritonitis originating from pelvic disease and limited to the pelvic peritoneum is most amenable to the salines and the ice-coil, with sufficient codeine to quiet pain. Later a change from cold to hot applications may be made after the inflammation is well under control, but we must keep constantly in mind the frequent need of surgical aid. The medical treatment of peritonitis arising from appendicular disease is still unsettled. Every case should be carefully investigated and studied before instituting treatment. No routine method will suffice for all cases. Treatment should be based on a clear conception of the condition of the appendix,

extent of peritoneal involvement, stage of the disease, and nature of the attack, whether primary or recurrent. In every case the medical man should call to his aid the surgeon, not with the view of immediate operation, but in order that the surgeon may become thoroughly familiar with the patient's condition in case it should become an operative one later. It is well to clear the bowels with oil, if called early in a mild primary attack, and then splint them by administering codeine and atropine, preferably subcutaneously, using the ice-coil over the abdomen, and excluding food of all kinds for the first day or two, in order to avoid peristalsis and to insure more complete intestinal repose. Unfortunately we are not always called immediately on the appearance of appendicular disease, in which case the laxative dose of oil must be omitted, and intestinal repose secured at once by codeine and atropine.

It has been Bell's fortune to see many primary attacks of appendicular disease entirely subside under the above treatment, never to reappear or cause the individual the slightest concern thereafter. A recurrent attack calls for removal of the offending organ. All cases of perforative peritonitis call for sufficient anodyne to secure complete intestinal repose, which, it is well to bear in mind, requires but small doses of codeine or morphine, while large doses add to the depression and shock.

In the judgment of the writer the physician should call to his assistance the experienced surgeon the moment he decides he has to deal with either a case of diffuse purulent or perforative peritonitis, the condition being one calling for immediate surgical relief. The physician's duty consists in making an early diagnosis, and instituting proper treatment until surgical relief can be secured. We should not delude ourselves or rob our patients of the only chance of recovery by continuing the worse than useless drug treatment.

SEXUAL NEURASTHENIA.

In the *Medical News* of July 13, 1901, GUITERAS gives the following general treatment for this condition: Under this heading we must consider the diet, the digestion, regulation of the bowels, exercise, and hydrotherapy, the cold sponge bath being of primary importance. The sedative effect on the general nervous system of the cool sponge bath is only equaled by the stimulation of the internal secretions, due to a temporary determination of an increased quantity of blood to the interior of the body. Unnecessary as it may appear at first glance, it is of some importance to give the patient minute directions as to the method of taking his sponge bath.

Patients with an enfeebled circulation, and not accustomed to it, will shrink from the experience at first, for it must be remembered that many people are not accustomed to bathing; in fact, the majority of people in the country towns, even the well-to-do, have no bath-rooms in their houses. This applies especially to old towns, as in new settlements houses are built with all the modern improvements. Many people living in cities always take warm baths by preference, and the writer cites a case of an athletic trainer in one of the largest institutions who cannot take cold baths, and never does. It is well in such cases to direct the patient to stand in a few inches depth of warm water while sponging the body with cool water, and to carry out the process methodically for the first few times in the same order each time, the limbs being sponged at first. Beginning, for example, with the left arm, taking next in regular order the right arm, left leg, right leg, neck, chest, abdomen, and lower part of back, concluding by squeezing a spongeful held at the back of the neck so that the water will flow down the spine. Before the sponging of each segment of the body, the sponge should be dipped in cool water, and partly wrung out. Rapidity of movement is of prime importance. The entire sponging process should not take over two minutes, and the vigorous rub-down following three minutes more. The patient should then dress as quickly as possible, and the eating of a light breakfast should not be delayed more than fifteen or twenty minutes. The brisk exercise has awakened an appetite, and the transient internal congestion has started a flow of gastric juice, which will be felt in these neurasthenics, who often have hyperchlorhydria, as a dull burning in the pit of the stomach, if the breakfast is longer delayed.

The dull feeling in the head of which neurasthenics complain, the feeling of having been on a spree the night before, which is usually the result of a passive cerebral

congestion, often vanishes under the vasomotor stimulation of the sponge bath in a manner almost magical, and this is one of the strongest factors in winning over the patient to a faithful carrying out of a procedure from which he at first instinctively recoils. In selected cases of sufficient vigor, sea-bathing, cold douching, the shower-bath, and the plunge may be advised, though in nearly every case the indications are best met by the cold sponge bath.

Massage, in the hands of an expert and conscientious manipulator, is also good, as by this means the muscles and internal organs receive the same stimulation that would be derived from active exercise, while the central nervous system, having no demand for the expenditure of energy made upon it, receives the benefit of the improved circulation as clear gain. It is almost incredible to what a degree the tone of the body can be reduced in these cases of sexual neurasthenia, in which the symptoms are considered by some simply imaginary.

The diet in every case should be generous, and largely nitrogenous, the sugars and starches being greatly restricted. Rare beef and mutton, with plenty of the green vegetables, oysters, raw or lightly cooked, baked and boiled fish, eggs, milk, curds, kumiss, and fresh butter used in generous quantities, should form the foundation of the regimen. Highly seasoned dishes and sauces, pastry and rich desserts, pickles, pickled meats, or fish, and everything cooked by frying, should be religiously shunned. Coffee, tea, and alcohol should be avoided, but water should be drunk freely. Most neurasthenics drink too little water, and it is well to prescribe a certain amount to be taken every day, say one and one-half to two quarts. Habitual tobacco smokers should be instructed to cut down their allowance to one-half, but preferably should limit themselves to one after-dinner smoke. There is nothing in the calendar so bad for neurasthenics as cigarette smoking, especially if the smoke is inhaled.

Another, and by no means less important matter to attend to, is the regulation of the bowels. The cold bath in the morning already spoken of stimulates the secretions, and the increased peristalsis which also results will of itself, as a rule, insure a movement. This, in conjunction with the establishment of a regular habit of visiting the toilet immediately before or after breakfast, has frequently served to completely overcome the sluggish, constipated habit so prevalent in this class of neurasthenics. In cases in which these measures are not sufficient of themselves to initiate regularity of the bowels, the administration for a short time of fluid extract of cascara, twenty minims night and morning, or, better, fifteen minims three times daily, will overcome the inertia and pave the way for the establishment of a periodic evacuation.

The patient's leisure hours should not be allowed to drag for want of quiet, wholesome amusement, and he should be as much in the open air as possible. Exciting and exhausting amusements, of course, prove injurious to those who are already bankrupt in nerve force. An amount of exercise in the open air carefully regulated so as to fall within the limits of fatigue is another hygienic measure of the greatest importance. For those who have not much leisure, walking from their place of business to their homes is an excellent way of taking open-air exercise. Where the distances are great and fatigue easily brought on, it is well to walk but part of the distance and increase it gradually. By increasing the walking distance a block a day the patient will soon be able to cover quite a distance without much difficulty. More benefit will be derived from walking a few blocks briskly with head erect, shoulders thrown back, and arms swinging freely, than by languidly strolling along any number of blocks. Nothing fatigues so quickly as lolling along in the lackadaisical manner to which the neurasthenic is prone.

SOME AFFECTIONS OF THE KIDNEYS.

In a lecture on this subject published in the *Clinical Journal* of July 10, 1901, TUBBY says in regard to treatment that in a case of unilateral hydronephrosis or bilateral hydronephrosis, unless the tumor is giving rise to discomfort and pain, it is better to leave it alone and watch it. If it is very large we may interfere, but if the patient is experiencing no pain, and the cause is a non-removable one, it is better to leave the kidney alone altogether, even though it may be large. Some physicians have advised a method of combined friction and compression of the tumor, by virtue of which some-

thing may be disturbed and dislocated, and the urine suddenly passed down the ureter. The author regards this as dangerous advice. That method may cause urine to be discharged into the peritoneal cavity, with fatal results. It is a mode of dealing with an affection in the dark. If the swelling should continue to increase in size, it is advisable to tap the kidney. It often happens that one tapping is not sufficient, and then the tapping should be repeated three or four times. Sometimes the tapping is effectual, and the patient goes on well. In the absence of a post-mortem examination it is difficult to say how tapping has been successful, and what has been dislodged from the ureter so as to allow the urine to flow in a normal way.

We must now ask the question where we should tap, and how. If we do it on the left side, that is to say, on the side in which the liver is not so largely placed, we may tap one and a half inches below the tip of the last rib, and outside it.

If it is on the right side we are in great danger of wounding the liver if we tap at the corresponding spot. We should puncture at the mid-point of a line which is drawn from the tip of the last rib to the anterior superior spine of the ilium, and about two and a half inches behind the anterior superior spine. It is most important that when we tap we should observe the utmost aseptic precautions, because it has happened that hydronephrosis has been converted into pyonephrosis simply from the want of them. The skin should be thoroughly sterilized, the instruments boiled, and rigorous asepsis observed. The operation does not simply consist in plunging a trocar into the kidney, and letting the fluid run out of it. We should have a proper aspirator, which should be sterilized, so that no air is admitted into the kidney. Greig Smith, in his work, advises that the trocar itself should be filled with fluid, so that we do not introduce any air into the kidney, and therefore we will probably introduce no septic organisms. He gives it as his experience that cases of hydronephrosis have been converted into pyonephrosis by lack of antiseptic precautions.

The next question is, Supposing we tap repeatedly and the tumor begins to grow again, should we perform nephrotomy and drainage? The answer is: Yes. Nephrotomy is cutting into the kidney substance; nephrectomy is removal of the kidney; nephrolithotomy is removal of stone; and nephrorrhaphy is sewing the kidney to the posterior abdominal wall. Nephrotomy has been practiced, but unfortunately it is rarely curative unless at the same time we can remove the stone. If this fails we must consider the question of nephrectomy. This operation, which is a severe one, is done when nephrotomy and tapping have failed. It is also performed if the amount of urea passed day by day is considerable—that is to say, from 350 to 400 grains per ounce, but not less. Finally, nephrectomy is done if the kidney is found so hopelessly disorganized that it must be a source of danger if left.

We come now to pyonephrosis, which has already been defined. Pyonephrosis is usually associated with either stone, gonorrhea, stricture, or enlarged prostate. That is to say, there is a kidney which has been the site of hydronephrosis and has been infected by septic organisms. There are plenty of septic organisms with gonorrhea ready to travel backward. How does the kidney become infected? There is no doubt it is through the lymph-channels—that is to say, pus or septic organisms make their way up to the kidney by these channels and infect it.

The symptoms of pyonephrosis are those of hydronephrosis plus those of abscess; but the pain is much greater, and there are edema and tenderness in the loin. Pus is occasionally present in the urine, especially when the urine has been discharged suddenly in large quantities. With pyonephrosis there are constitutional symptoms of septic infection.

The treatment is either nephrotomy or nephrectomy. Pyonephrosis is met with mostly in association with bladder and urethral causes. It therefore follows that nephrectomy is not a justifiable operation in many cases, because the other kidney is pretty sure to be in a state of hydronephrosis or pyonephrosis, and one has sometimes to content oneself with nephrotomy.

TREATMENT OF TYPHOID FEVER.

MARSDEN, who is the medical superintendent of the Monsall Fever Hospital of Manchester, England, in an article on this subject contributed to *The Lancet* of July

13, 1901, states that he, of course, does not question the advisability of confining the patient to bed from the earliest possible moment, and keeping him there throughout the attack and for the first ten days of convalescence. Nor is it believed a difference can arise as to the importance of the general hygiene of the sick-room or the necessity for good nursing. No attempt is made to discuss such very questionable treatment as the use of antiseptic and even vaunted specific drugs, and the author's own experience has caused him to conclude that no benefit is to be expected from the typhoid antitoxin hitherto prepared. Further, we shall probably gain nothing by considering the various remedies which have been used in the treatment of the different symptoms. On the other hand, not only is diet admittedly a most important factor, but comparatively recently attempts have been made to modify or to alter long-established rules.

Even in the most recent text-books we are taught that irrespective of the condition of the patient and his apparent fitness, and ignoring the type of his attack, we must not allow solid food, not only during the acute stage, but till his temperature has been normal for ten days. It is impossible to have treated many cases without being struck with the hardships of such a rule in some, and with its impracticability in others. In the first place we shall doubtless agree that so long as the tongue is dry or the patient from his mental or general condition has no inclination for or ability to consume anything beyond fluids, we cannot do better than keep to a rigid liquid dietary, and the advisability under these circumstances of regular administration, limited quantities, and free dilution, along with periodical inspection of the stools, is not in question. But apart from such cases it is maintained that each patient should be dieted according to his condition, so that it may happen that one will receive a limited supply of solid food of a specified character almost throughout the attack, whilst another may not be able to resume solid food until convalescence is far advanced. But as an attempt at construction is often more serviceable than detailed destructive criticism, and since the writer firmly believes in maintaining a definite plan, it suits his purpose to lay down a few rules: (1) In every case the patient is to be put on fluids alone at first, and (2) easily digested food only should be allowed until at least three weeks after the termination of the attack. The author advocates the gradual change dictated by old-fashioned usage, such as fish, chicken, mutton, and beef, in this rotation and allowing time to observe the effect, or want of effect, of each change. Practically, therefore, the change consists solely in altering the time at which a trial with solid food may be made from the tenth day of convalescence to any period during or after the attack, when the patient's wishes and our own examination and experience convince us that the attempt may with benefit be made. A third rule which is made is that until the end of three weeks of convalescence precautions should be taken to prevent the swallowing of large, imperfectly masticated pieces of meat, etc., and here it must be admitted that the absence of ravenous hunger, from the earlier satisfying of legitimate cravings, is itself one of the best safeguards against an inclination to bolt food. At the same time, if the habit is firmly rooted it is combated by having the meat previously minced or chopped.

The objections raised against any deviation from a fluid diet are as follows: (1) The physiological processes are so altered during the febrile state as to interfere with the proper digestion of other forms of food. In practice the patient's wishes can with advantage be consulted to a very large extent, and if one carefully watches the effect one has to admit that the presence of fever *per se* does not necessarily prevent the assimilation of various solid foods. (2) A second objection urged is that any other form of diet may irritate the ulcerated and catarrhal bowel. But here again one finds numerous foods, such as underdone or raw meat, whitefish, boiled chicken, rice, etc., which are more readily digested and assimilated than the precipitated casein of cow's milk, and it is a matter of experience that in some cases with diarrhea an improvement is best obtained by an alteration in the dietary. Of course, when speaking of any food given during the acute or early convalescent stages, it is to be understood that special attention is paid to the cooking and to freedom from small bones or large pieces of skin, cartilage, tendon, etc. (3) But perhaps the most constant objection urged is the danger of producing perforation of the bowel owing to undigested particles increasing the catarrhal

state or mechanically causing a rupture as they are forced along the intestine. This is always uppermost in the mind of the medical practitioner treating the case, and it is a *bête noire* to the initiated who are under treatment. Of course authentic instances are on record, as in the case of a youth who shortly after a Christmas dinner showed symptoms of perforation. But it must be remembered that with one or two exceptions perforation has always been found to be the result of a progressive ulceration or necrosis, and the case just mentioned was no exception to the rule, since at the laparotomy the bowels were free from solid particles, so far as could be seen, and the feces exuding from the perforation were of the usual soft yellow character, whilst there was nothing suggestive of mechanical injury. Moreover, it must be evident that such an occurrence cannot be brought in question under the rules mentioned. A fourth objection to the too early administration of solid food is the possible production of a temporary fever or even of a definite relapse. The author is heretical as to the doubt of the existence of a *febris carnis,* and in this connection believes that as sudden and at present unexplained rises in the temperature are relatively common during the early convalescence from enteric fever, there is always the possibility of their relationship to food being *post* and not *propter,* and the writer has ceased to make any alteration in the diet solely on account of the supervention of pyrexia, with the result that the fever has immediately subsided or pursued its further course quite independently of the food given.

Then as regards a relapse. This is generally admitted to be the result of a reinfection, so that it is not rational to assume a definite causal relationship where it occurs immediately after. A more likely suggestion is that since during or after an attack of enteric fever the bile may be not infrequently crowded with the specific bacilli the administration of solid food by increasing the flow of bile may as a result increase the number of bacilli poured into the intestine and thus be instrumental in producing a relapse. Such a suggestion, however, is purely theoretical, lacking confirmation, and from our ignorance of the nature and causes of a relapse difficult to prove. It is believed, therefore, that the adduced objections are not a sufficient warrant for the rigid rules which have till recently fettered us. On the other hand, the increased mental satisfaction and improved bodily constitution which follow a more liberal and varied diet demand that some such alteration as suggested should be made. In hospitals, certainly, when dealing with a large number of patients, the change is even more essential, as it tends to do away with that deceit and the smuggling of possibly harmful foods which is only too commonly practiced or attempted when the restrictions are rigidly enforced.

In conjunction with an altered dietary, a system of regular immersion in a cold, or rather a tepid, bath during the acute stage of illness is capable of greatly altering the aspect of a ward containing a number of enteric fever patients. At the present time antipyretic drugs for the reduction of temperature are advisedly discouraged, and usually one resorts to some form of hydrotherapy. Cold or tepid sponging or douching and cold or ice packs can be used under all circumstances; the essential factor, however, is that they must be regularly and thoroughly administered. But whenever possible a tepid bath of from 75° to 85° F. is to be preferred. It must be distinctly understood that beyond acting as an excellent hypnotic and stimulant in delirious or wakeful cases no immediate benefit is to be looked for, whilst to be of any real value they must be given regularly as the pyrexia again reaches a certain maximum. A short experience of their use will convince one (1) that they are potent factors in reducing the temperature with the diminution of its attendant evils; (2) that the intellect keeps clearer during the disease and stupor is lessened; (3) that they exert a general tonic action on the system—the skin keeps softer and more healthy, the circulation is improved, bronchitis, hypostatic pneumonia, and bronchopneumonia are less prominent features, whilst headache and insomnia are much relieved, the patient frequently sleeping between successive baths; (4) it will be seen that they retard emaciation and maintain the muscular strength and nutrition; and (5) that they diminish the percentage of patients who die from cardiac failure and asthenia. It has further been shown that by their use the toxicity of the urine is greatly increased. To obtain the best results it is necessary that the baths should be commenced early in the attack.

THE TREATMENT OF CUTANEOUS CANCER.

In the *Journal of the American Medical Association* of July 13, 1901, HEIDINGSFELD discusses this topic quite fully. He does not take up all the remedies which are extensively used and extolled to a greater or less degree by various members of the profession, but concludes a brief narration of his results with a remedy which at present is receiving general and favorable recognition. He refers to arsenous acid, mixed with equal parts of pulverized gum arabic, to which sufficient water is added to make a paste of the consistency of butter, and enough cocaine crystals to alleviate the anticipated painful reaction, as recommended by Marsden, Robinson, Gottheil, and Stelwagon. He has found it expedient to add 10-per-cent glycerin before adding water, which prevents the paste from becoming too dry, and therefore prolongs and intensifies its action; the reactionary pain is also diminished by the glycerin.

℞ Ac. arsenosi, gr. lxxv;
Pulv. acaciæ, gr. xxx;
Cocain. hydrochloratis, gr. xxx;
Glycerini, minim xxx;
Aquæ, q. s.
M. Ft. paste. Sig.: Apply locally.

The paste is applied directly to the ulcerated surface, after being uniformly spread on a piece of muslin or linen, which has previously been carefully adapted to the affected area. It dries in the course of five to ten minutes, and remains firmly adherent until its removal, twelve, twenty-four, or thirty-six hours later, is indicated by the pain, intensity of the reaction, or the degree of the treatment required. The after-treatment consists in the application of simple, soothing, antiphlogistic remedies, in the form of indifferent pastes, and Wilson's ointment combined with cold compresses saturated with the solution of alum acetate. The resulting pain is usually slight, often scarcely sufficient to disturb sleep. There is some reactionary inflammation, in the form of redness and swelling, which is usually limited to the ulcer and its immediate neighborhood.

It has not been found essential to prepare the surface by the application of caustic potash, in stick or solution, green soap, etc., as recommended by numerous authors, in order to cut down the epidermis and to remove scales, crusts, and keratoses, which can interfere by their presence with the action of the arsenic. In one case the writer felt obliged to remove a crust by means of a compress of oil, applied for twenty-four hours. The application of caustic potash, even though momentarily applied, is exceedingly painful, and its irritating and destructive action being directed against healthy and diseased tissue alike, it is considerable of a gain to be able to dispense with its use.

In most instances one application of the arsenic has been all that was necessary; in several instances the application was repeated for fear the resulting reaction was not sufficiently intense. In one of these cases the ulcer was surrounded by an elevated wall of tissue, epitheliomatous in character, which did not share the reaction; the second application, made twelve days later, remained as ineffectual as the first, and though the wall remained, cicatrization was complete in twenty-nine days. During the following two or three weeks the wall also underwent spontaneous involution and has entirely disappeared.

From this it is believed that arsenic not only possesses an elective action, exerting its chief influence on the weaker and less stable pathological tissue, sparing the more resistant surrounding normal tissue, but also exerts a specific influence over the cancerous tissue whereby it inhibits its growth and prevents its further spread and development without entailing its direct destruction.

This experience is too recent to permit of an opinion of the permanency of the results; its immediate effects are certainly all that can be desired, and if nothing but this crowns our efforts it should hold a very high place as a palliative measure.

Time does not permit its comparison with other remedies that have been recommended from time to time, and are in extensive use to-day, namely, formalin (Ravogli), acid nitrate of mercury, pyrogallic acid, zinc chloride, electrolysis (Corlett), injections of alcohol, Vienna paste, mixed toxins of the bacillus of erysipelas and bacillus prodigiosus.

As far as Heidingsfeld's experience permits him to judge, he is strongly impressed that this method of treatment possesses decided advantages over the former methods.

It is prompt in results, easily limited and controlled, spares the healthy tissues, exerts a marked specific influence, and produces relatively little distress and subjective disturbance. It promotes prompt cicatrization, and speedily converts a freely discharging, foul-smelling ulcer, filled with soft mushy granulations and flabby detritus, into a firm, clean-looking sore, inhibits the discharge, and materially diminishes the inflammation of the surrounding tissues. The peculiar influence it exerts over the diseased tissue without entailing its actual destruction leads to the belief that the best results are to follow its application in mild rather than in severe forms; in other words, under-treatment rather than over-treatment is indicated. Time must prove whether or not the results are temporary or permanent in nature. But even in its present form it should prove to be an invaluable agent, if only palliative in nature.

THE TREATMENT OF BRONCHIECTASIS AND OF CHRONIC BRONCHIAL AFFECTIONS BY POSTURE AND BY RESPIRATORY EXERCISES.

EWART advocates in *The Lancet* of July 13, 1901, the continuous postural method of treatment in these cases, and he believes that it is preferable to the intermittent use of posture recommended by Quincke, to whom, as has been lately discovered, belongs priority in the systematic use of this form of relief. His method, which is to place the patient in the inclined prone position with the head lower than the feet for a period of half an hour or more night and morning, was described by him in 1898, and was further described by Jacobson in 1900. It should not, however, be forgotten that the same principle had long been utilized by some chest physicians, in a modified and perhaps less systematic form, for the relief of the basic cavities apt to occur in phthisis. Patients were sometimes directed to lean over the edge of the bed in order to empty their vomicæ more effectually. This is a rough-and-ready device.

In bronchiectasis the prophylactic capabilities which must belong to this treatment are evidenced by the immediate results of treatment in the cases reported. The late and destructive results of the affection are entirely due to persistent accumulation and imperfect removal of stale secretion. Dr. Ewart believes that had one of the cases which he reports been seen and treated on this plan several years ago bronchiectasis would never have reached the gravity which it now presents. Probably it might have been cured. This result might, indeed, be expected in all growing patients if only timely help could be afforded to the efforts of nature. This points to the urgent need for some more distinctive diagnostic signs to identify the disease at an early stage, and these will doubtless be found if sufficient attention be given to the matter.

A cure is perhaps not to be hoped for where fibrous replacement of lung tissue has taken place on a large scale. It is to be feared that in both of the cases mentioned this had already partly taken place, and that the persistence of the expectoration and of the catarrh and the recurrence of fetor are to be accounted for in this way. The obvious indication is sanitation of the cavities, which are deprived by the stiffness of their walls of the power of spontaneous evacuation. This is one of the aims of the creosote inhalation method, which, however, must be regarded as a somewhat trying and awkward means of effecting the mechanical purpose in view. By enforcing the postural method we have done a great part of our duty toward protecting the patient against any progressive accumulation and its results, and we may then without any misgiving take time to select, if necessary, curative measures of greater responsibility, whether by the knife, by irritating inhalations, or by injections, all of which methods have been tried in other cases with doubtful benefit.

Where there is no advanced fibrosis—that is, in all early cases, particularly before middle age—the best curative treatment appears to be a combination of the postural method with well planned respiratory exercises, whereby more and more of the previously hampered lung substance is restored to activity, and most of the space usurped by the dilatations may gradually be reclaimed by healthy pulmonary tissue. The experience in the first case demonstrates, however, that the respiratory advantage thus sought is not in itself capable of producing the desired effect so long as the major indication of keeping the cavities

empty and dry remains unfulfilled. The wearing of the respiratory jacket as a stimulus to respiration did not make any appreciable difference in the pulmonary condition.

Bronchiectasis, though far from uncommon, is a relatively infrequent occasion for this treatment. But we all have daily opportunities of contributing to the comfort and relief of patients suffering from general catarrhal affections with tenacious mucus. Though it is difficult to induce them to lie down after they have been accustomed for days or weeks to struggle with their cough in the sitting posture, if only we can get the shoulders down and the pelvis raised the struggle is at an end, and a case of long standing may in a few hours be on the high road to recovery.

THE PREVENTION AND TREATMENT OF MISCARRIAGE.

HORROCKS gives the following rules in the *Medical Press and Circular* of August 21, 1901, as to prevention and treatment:

Avoid overstrain, shock, and fright. Operations are not to be performed unless needful, especially extraction of teeth.

Avoid using instruments about uterus and cervix, and also avoid syringing. Pessaries should not be worn after the fourth month.

Purging should be avoided, and enemata, specially with turpentine or glycerin. Constipation should be avoided. Pelvic tumors may be pushed up into the abdomen or even removed. Endometritis must be cured. Cessation from coitus often permits of gestation progressing to term. Uterine displacements must be remedied. Avoid tight lacing.

Certain ecbolic drugs must not be given, such as ergot, savin, digitalis, quinine, and lead.

Syphilis should be treated in both father and mother, and very often it is useful to give small quantities of mercury throughout pregnancy. General diseases must be treated with the appropriate remedies. Oversuckling should be avoided.

Trachelorrhaphy sometimes enables the ovum to remain in the uterus.

Alcohol should not be taken to excess, and in most cases should be avoided altogether.

High pyrexia from any cause should be brought down by cold baths, etc.

Rest in bed and some form of opiate is the best treatment. If in doubt, operate and clear out the uterus.

When there is serious hemorrhage, or when the os uteri is so large or expulsive pains so great and frequent that miscarriage is inevitable, allow it to take place, and if need be assist it either by puncturing the membrane or clearing out the uterus digitally under an anesthetic.

When incomplete it is best to clear out the remainder. In some cases it is useful to pack the vagina with gauze. The bleeding is stopped or lessened, and uterine contractions are promoted, and later on it is much easier to deliver.

Vaginal injections of hot lotions are recommended by some, but they are not very trustworthy.

Dilators may have to be employed, and ovum forceps and a curette, but it is better to mutilate the fetus than to damage the mother.

Everything must be done aseptically, and if need be the uterine cavity must be swabbed out with tincture of iodine or some other antiseptic.

THE USE OF DRUGS IN PULMONARY TUBERCULOSIS.

HUGGARD, in the *Medical Press and Circular* of August 21, 1901, asks what medicines and measures we have at our disposal, and answers drugs, which act by improving the general health, as, for example, arsenic, quinine, strychnine, lime, phosphorus preparations; by increasing the local resistance of the affected tissues, as creosote and its derivatives, salicyl preparations, and counter-irritants; by modifying the quantity or character of the secretion, as the balsams, the terebinthinates, the essential oils, morphine and apomorphine, and inhalations, especially of formaldehyde; by controlling symptoms which react prejudicially on the patient: among these are digestive ailments; excessive or needless cough, which shakes and exhausts the patients, causes fever, or prevents sleep; scanty expectoration and retention of secretions; fever, which spoils appetite and prostrates the patient. By removing complications, such as syphilis.

In the choice of remedies the points to be

considered are not the same as guide us in diagnosis or prognosis. The first and most important point is to recognize that treatment by medicines must be altogether subordinate to general hygiene management—good food and fresh air with rest and exercise, according to the individual needs of the patient.

The first and most important point in treatment is to consider the state of the digestive system. If the stomach or digestion is out of order drug treatment is, as a rule, inadvisable, except in so far as it may aid in restoring the digestive functions to a normal state, or in removing some condition that tends to prolong the digestive ailment. For example, appetite and digestion not uncommonly improve with the artificial reduction of temperature, or with the control of excessive cough. In such cases we must feel our way cautiously and be guided tentatively by the results. The most important indication then is to get the stomach and bowels into proper working order. Nothing goes right so long as the digestion is wrong.

Temperature is the next most important guide to treatment. Pyrexia will in a large proportion of cases yield to absolute rest, bodily and mentally, combined with life in the fresh air. In many cases, however, a return to a normal level of temperature can be hastened by the administration of small doses of phenacetine—one to three grains—in combination with quinine and salol and sometimes arsenic. Taken in this way phenacetine seems to have rather a tonic than a prejudicial effect on the heart and on the general health, and may without hesitation be continued for months if need be. Experience with other antipyretics, save for occasional use, has not been so favorable, with the exception perhaps of salipyrin.

Arsenic, quinine, and salicyl preparations greatly diminish the tendency to recurrent attacks of subacute inflammatory character, and those recurrent febrile attacks without any change in the physical signs which are so marked a feature in a large number of patients suffering from pulmonary tuberculosis. These recurrent febrile attacks are no doubt of very various origin, tubercle as a rule rendering the organism highly sensitive to influences that cause pyrexia. The drugs mentioned seem to diminish this sensitiveness to febrile reaction; in doing so they accomplish something more than the avoidance of a temporary drawback or inconvenience. In tuberculosis, more than in any other disease, slight drawbacks are apt to provoke further prejudicial effects, and each morbid condition tends to become chronic. In averting slight drawbacks, therefore, we avoid great dangers which might completely alter the course of the disease. The disease is one in which preeminently anything short of the best is bad.

Next to pyrexia, as a guide to treatment, the writer would place a marked tendency to hemoptysis. Creosote and guaiacol increase the liability to pulmonary hemorrhage—as well, in fact, as to pulmonary inflammation—and should be avoided where such a disposition is present. The lime salts, the terebinthinates, and the balsams have, on the contrary, a somewhat restraining influence, as has also morphine in minute doses.

The treatment of excessive cough requires much judgment. A closely allied object of treatment is the modification and, as a rule, the diminution of bronchial and pulmonary secretion—the "drying up of the lungs." A certain amount of cough is in a large number of cases indispensable, and has a salutary influence. The problem is to secure the removal of the pulmonary and bronchial secretions with the least amount of virulence, exertion, or fatigue for the patient. Sometimes the secretions are extremely abundant, sometimes too scanty. The balsams and terebinthinates and tar for the most part diminish bronchial secretion, and the terebinthinates commonly render it at the same time less tenacious and easier to get up. Minute doses of morphine—from one one-hundred-and-twentieth to one-sixtieth of a grain of any of its salts—diminish secretion, but as a rule render it more tenacious. Apomorphine in small doses—one-twentieth to one-sixtieth of a grain of the hydrochlorate—loosens the secretion without making it much more abundant. The recently introduced morphine derivatives, heroin and dionin, greatly diminish cough, and to some slight extent diminish expectoration, while they are free from the drawbacks that morphine has, of rendering the secretion viscid and difficult to get up. They are also practically devoid of constipating effect, and they do not upset the digestion. For the last two or three years they have almost altogether

replaced in the author's practice the phosphate of codeine, which has fewer drawbacks than has morphine for the relief of excessive cough.

Vapor of formaldehyde is believed to be the most valuable agent for modifying the bronchial and pulmonary secretions. For the last three years the writer has used this drug extensively, and with more and more satisfactory results. When steadily used, it generally causes the secretions to be less purulent and more mucous, at the same time diminishing the amount and rendering expectoration easier. Where the use of the drug has been steadily persisted in for months, tubercle bacilli have as a rule also become less numerous, and in some old cases even have disappeared. The mode of employment requires a little care. The best way to use formaldehyde is by means of a muzzle inhaler. The strength of the solution should at first not be more than two or three per cent in rectified spirits of the ordinary forty-per-cent solution. The addition of some essential oils renders the inhalation quite agreeable. Only from five to ten minims at first should be put on the inhaler, and this quantity should be renewed every fifteen or twenty minutes, the entire time of inhalation being from two to four hours a day. The strength may be gradually increased up to six or eight per cent, and sometimes even to double that amount. If cough is very irritable, chloroform may be added to the inhalation. From independent observations of the writer he is strongly of the opinion that chloroform, apart from its soothing influence on the cough, has in some cases a beneficial influence on the disease. It must, however, be used with judgment. It has seemed to give rise to pyrexia, by causing retention of secretion. The inhalation of formaldehyde on the contrary tends considerably to diminish pyrexia due to the absorption of toxins. Formaldehyde has another advantage. If not too strong it diminishes irritability in the pharynx and larynx. It is, however, very irritating to the eyes and nose, and for this reason should be used only with an oral inhaler, or if the Burney Yeo oro-nasal inhaler is employed, it should be placed below the nose.

From the author's experience he believes syphilis to be a complication of pulmonary tuberculosis in a much larger proportion of cases than is usually thought, and in such cases considers the treatment of the syphilis to be of the first importance. Small doses of the bichloride of mercury have then, instead of a depressing, a remarkably tonic influence. Intramuscular injections of mercurial salts, though more strikingly beneficial, have as a rule the drawback of being excessively painful. To this rule, however, *huile grise* or mercurial ointment, rubbed up with sterilized oil, is an exception. The iodide of ethyl inhalation is perhaps the least objectionable, while not the least efficacious mode of giving iodine. It may be combined with the formaldehyde inhalation.

PERITONEAL INFECTION.

CLARK says in the *Journal of the American Medical Association* of August 10, 1901, that in appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, preventing a secure closure of the stump after amputation of the appendix, and when the appendix has ruptured and either caused a localized abscess or a general peritonitis, if the operation can be performed early, when the inflammatory process is confined to the dependent portion of the appendix, never drain.

The objections to drainage in these cases are probably not as great as when the gauze is introduced deeply into the pelvis, because the site of the operation is more superficial, and therefore the possibility of effecting true drainage is better; but if a clean operation has been performed the drain is superfluous. A distinct objection to drainage in the appendiceal area is the liability of post-operative hernia occurring in its track.

Localized collection of pus in the pelvis. In these cases either the abscess sac should be enucleated cleanly, and the abdomen closed without surgical drainage, or it should not be opened through the abdomen, if it is too adherent to be enucleated safely. These causes are, *par excellence*, the ones for incision and drainage through the vagina.

Suture of intestine. A drain should only be employed when there is doubt concerning the integrity of the suturing.

Excision of fistula leading from the intestine to the abdominal wall. In these

cases it is safer to pack a gauze drain down to the sutured areas in the intestine, for they are especially prone to break down and reestablish the track. In case this accident occurs the gauze forms a safe avenue for the escape of fluids and gas, and the subsequent contraction of the drainage track may close the intestinal fistula.

Purulent peritonitis. Pawlowsky has shown that the usual avenues for the absorption of fluids from the abdominal cavity are closed in purulent peritonitis, consequently we can only endeavor to supplement them by thorough irrigation of the abdominal cavity and free drainage. In order that the drain shall serve the best purpose it should be a large one, and if necessary, in addition to a central opening in the abdomen, lateral openings in the flanks as advocated by Dr. Kelly may be made. The prognosis in these cases is always grave, but this method of treatment gives the patient the best chance of recovery.

TREATMENT OF DELIRIUM TREMENS.

In the *Boston Medical and Surgical Journal* of August 22, 1901, we find an article by PERRY on this subject.

Of the many popular remedies, Dr. Perry believes that chloral hydrate, alone or combined with the bromide of potassium, holds first place, as in his hands no other drug has approached it in efficacy. But it is not alike applicable to all cases; and while it may be safe in a very large proportion, if administered cautiously, there are certainly no small number in which its use would be exceedingly hazardous. Because of its depressing effect upon that organ a weak heart is the most common condition in which it is plainly contraindicated. That existing and chloral given, death is liable to occur suddenly, and within ten or fifteen minutes.

There are, perhaps, other conditions which render chloral unsafe, but if the heart is fairly strong this drug may generally be used, provided proper care is invariably exhibited. He has been accustomed to combine it with the bromide of potassium, and in all new cases commence with not over eight grains of the doubtful ingredient. Watching its effect very closely, and no disturbing signs noted, he then increases the dose, but always with a due regard for the baneful possibilities, and never does he venture to use very large doses. Small doses, at intervals of from fifteen to thirty minutes, have been his invariable rule.

But while chloral acts well in most cases, now and then—but only rarely, however—it proves absolutely inert. In fact, it has been given—guardedly, of course—to some patients for hours without any appreciable effect whatsoever. Chloral failing, he has used chloralamid, paraldehyde, and various other hypnotics, but with scarcely any better effect. With hyoscine hydrobromate, however, more success has resulted, but this is not a popular agent, for it is certainly capable of injury; and although doses as large as 1-30 grain are recommended by some, one should hesitate to administer hypodermically more than 1-200 grain to a new subject, for under some conditions it might so seriously obstruct the breathing that the end would surely come unless artificial respiration were kept up, and oxygen resorted to.

A much safer and far more effectual remedy is musk. Unfortunately, its cost is prohibitive, but in desperate cases that, of course, ought not to be seriously considered.

While many delirious patients will take medications by the mouth, some cannot be persuaded to do so, and all drugging must be done hypodermically.

The list of agents of value which can be so administered is short; the most serviceable are apomorphine, hyoscine, and morphine. Intelligently used, the first often acts admirably, and may be considered fairly safe; but, manifestly, it is easily pushed too far, when great distress for the time being and serious depression afterward are sure to result. From many reports made by patients who had been inmates of the various so-called "cures," this seems to be the popular remedy in the most of such places, and its peculiar effects have caused its use to be termed the "knock-out treatment." It would certainly seem rightly named, for all of its victims who have been seen have testified that they suffered from it for weeks and months, while but few recovered without special treatment of long duration. Hyoscine has already been briefly alluded to. The effects of morphine are not constant. In most cases it is quieting; but seldom is it possible to produce sleep by this means alone if restricted to safe doses.

The delirious patient at last asleep, he

must not be disturbed, although he may not rouse up for twelve or fifteen hours. That "sleep is nature's sweet restorer" was never better demonstrated than in delirium tremens, for the victim awakes "in his right mind." Insisting that he be kept as quiet as possible after awaking, but that his treatment by means of the alcoholic substitutes and heart tonics be renewed, and the nourishment be pushed to its utmost, at the end of twenty-four hours he is literally a new man.

The writer considers delirium tremens one of the easiest of the apparently grave affections to manage, and when uncomplicated and intelligently treated recovery ought to occur within forty-eight hours, and the victim be not only out of bed but below stairs and out-of-doors if the weather permits.

A word as to the general management of violent cases. Sufferers from such attacks are oftentimes very discerning, and able to promptly detect any one who is afraid of them. They are also, as a rule, quite ready to take advantage where they can intimidate. Therefore he who assumes their care should be ever cool, firm, and fearless. When he can do so he should humor the patients while under delusions, and in so far as possible avoid discussions and arguments, or attempts to persuade or dissuade. If a sufferer sees bugs crawling along the walls or on the bedclothing, the attendant should not try to convince him that he is mistaken, but instead should at once go through the motions of removing and destroying the offending insects. If he rushes to the window and appears to see a runaway, over which he becomes intensely excited, it should be followed for a moment in its imaginary course, and then he be assured that the horse has been stopped without having done any injury.

THE TREATMENT OF CYSTITIS.

The *Medical Record* of August 24, 1901, tells us that the management of a patient with acute inflammation of the bladder is usually simple enough, and in uncomplicated cases recovery is prompt; but when the disease becomes chronic, we often have a condition which taxes our patience severely. The treatment of those forms of cystitis which are caused by calculus, gonorrhea, new growth, or stricture must, of course, depend upon the removal of the cause, since the inflammation is distinctly secondary to such conditions; but these conditions are not responsible for the very large proportion of cases of cystitis in which the disease is of a tuberculous nature, and it is tuberculous cystitis which requires such long and patient treatment, both of local and general conditions, and which is so difficult to deal with satisfactorily by surgical means. Von Hofmann has recently (Die Moderne Therapie der Cystitis, 1901) contributed an interesting monograph on this subject, and he devoted much space to the treatment of tuberculous cystitis, which he considers the most important form of the disease. His main idea is that the disease should be considered general as well as local, and that very active systemic treatment should be instituted. In this regard creosote and guaiacol and their preparations seem to be the best drugs, but the question of nutrition is also of great importance, just as it is in pulmonary tuberculosis. Surgery has been called upon in many cases of tuberculous cystitis, but the most that can usually be done is to establish drainage, unless we should be so fortunate as to meet a case with a circumscribed ulcerative process, which could be treated by scraping or cauterization.

As is well known, the establishment of permanent drainage is, as a rule, followed by amelioration in the patient's condition, since by it the bladder is placed completely at rest; but when we want the fistula to close it will not always do so, and the results are very uncertain as to permanent benefit, no matter what treatment is employed in addition to the drainage. Von Hofmann recommends as useful preparations several salts of guaiacol, and specially notices the cinamylate, and he also insists upon the importance of pushing the patient's nutrition as much as possible.

The local applications which will do good in cases of tuberculous cystitis are various solutions having germicidal qualities, and among other preparations may be mentioned several salts of silver and mercury. Patients will be found to differ in their tolerance of these preparations, and trial alone will show which is best and what strength individual cases require. The most important reason for failing in treating this un-

pleasant disease is that the tuberculous process is rarely limited to the bladder, but commonly involves other parts of the genital tract, from which it is difficult or impossible to eradicate it. Our treatment of tuberculous cystitis must, therefore, remain much as it has been, systemic and local, the former consisting in pushing nutrition as much as possible and using some of the drugs which have been mentioned, and the latter consisting in the employment of those operative means which place the bladder at rest or eradicate any accessible foci of disease, and the use of appropriate local treatment by means of germicides and antiseptics. Many patients will improve under such a regimen, but the condition is one of the most unsatisfactory with which the surgeon is called upon to deal. We might add that von Hofmann looks upon the development of cystitis in a patient with an enlarged prostate as a serious matter, to be avoided by rigid observance of catheter precautions. If cystitis does occur in such cases, he relies on nitrate of silver irrigation, and the internal administration of a urinary antiseptic. Good results in genito-urinary surgery sometimes follow the substitution of an organic compound of silver for the nitrate.

INERTNESS OF PETROLEUM COMPOUNDS WHEN GIVEN MEDICINALLY.

REYBURN, in writing in the *Medical News* of August 24, 1901, says that in his experience petrolatum when given internally passes unchanged through the intestinal canal. Whatever beneficial effects it may exert in the stomach and intestine are due to its lubricating and demulcent properties. A further incidental proof of the non-absorbability of paraffin and its compounds is shown by recent experience in its attempted use in surgery. After certain surgical operations which involve great destruction of tissue, great gaps are left in certain parts of the body after the wound has healed. This is especially the case after the extensive mutilations which are necessary for the removal of cancers and other malignant tumors. It has been suggested that the appearance of these parts could be greatly improved by injecting paraffin in a melted state under the skin in order to prevent the adhesion of the skin flaps to the subjacent tissues and thus diminish the deformity. This has been done successfully in a number of cases, but unfortunately it was found that dangerous and even fatal results were produced by the paraffin wandering from the point where it was injected and closing up the lymph channels of the part. A reference to this danger will be found in the *Medical News* of April 20, 1901, page 624.

Finally, therefore, if we consider (1) the entire insolubility of petrolatum and its compounds in either the gastric juice or the fluid of the intestinal canal, and (2) the fact that when petrolatum is given internally the whole of it can be recovered from the feces, we are warranted in stating that petrolatum can in no sense be considered a substitute for cod-liver oil as a nutrient and restorative, and (3) that the usefulness of petrolatum as a remedy must depend upon its unirritating and demulcent properties.

THE CONDITION OF THE KIDNEYS WITH REFERENCE TO THE EMPLOYMENT OF DIURETICS.

The *Medical News* of August 10, 1901, contains an article by ELLIOTT in which he reaches the following conclusions on this subject:

1. Except in the case of the irritant-epithelial diuretics (turpentine, cantharides, etc.) the entire class of diuretics may be said to exert their effect upon the urine by acting indirectly through the circulation.

2. Owing to the necessity for sparing the kidneys all irritation, drugs given for diuretic purposes should act indirectly rather than directly, consequently the secretory diuretics are contraindicated in irritative and inflammatory renal conditions.

3. In functional urinary disorders diuretics are mainly useful to overcome concentration and hyperacidity of the urine. To accomplish this, simple diluents and salines are best adapted.

4. In acute nephritis saline diuretics are permissible throughout the entire course of the disease and exert a beneficial influence by increasing elimination and clearing the tubules of inflammatory débris. Subcutaneous saline infusion constitutes our most powerful aid to elimination in desperate cases.

5. In chronic nephritis the cardiovascular

diuretics are most useful, owing to the fact that oliguria and dropsy are usually the result of circulatory failure. The dropsy under these circumstances, being of cardiac origin, may be benefited by cardiovascular stimulants, provided the kidneys are not too badly damaged.

6. Dropsy of purely renal origin is not amenable to favorable influence by diuretics.

7. Although the morbid process in the kidneys may furnish us with our primary inspiration to diuretic medication, it is the condition of the heart and circulatory apparatus in most cases that determines the choice of an agent.

THE USE OF CHLORETONE IN EPILEPSY.

M'CARTHY, in the *International Medical Magazine* for August, 1901, reminds us that so many remedies have been suggested for the treatment of epilepsy and have been found wanting, that it is not surprising the profession should look with suspicion on new remedies for this affection. It is not his purpose to suggest any sure cure for epilepsy, but merely to call attention to an excellent substitute for the bromides in conditions where they have failed to have the desired effects, or where, fo any reason, they cannot be administered Some patients stand the bromides poorly; others manifest nervous and cerebral symptoms; and practically all patients, after long-continued use, exhibit mental depression and lack of working power. As an example of the latter group of cases, a clergyman, aged forty-eight, who has had epileptic attacks at irregular but long intervals, has been using the bromides in half-drachm doses for the past year. He was unable to do his accustomed work as formerly, on account of the effects of the bromides, which produced mental torpor and lack of concentration. He was unable to discontinue the use of the bromides, on account of the return of the epilepsy, either in the form of *petit mal* or as epileptic fits. Here, then, was a case where the bromides were doing everything expected of them, and yet were unacceptable on account of the associated symptoms produced. In this case chloretone in fifteen-grain doses at night has produced excellent results, with little, if any, of the depressing effects of the bromides. No epileptic manifestations have appeared during the two months the patient has been under this form of treatment. In this case the intention is to alternate the bromides and chloretone, and in this way to retain the best efficiency of both preparations.

In another group of cases, where the epileptic attacks appear early in life, the fits recurring at short intervals and associated with dementia, chloretone was used as a substitute for the bromides, with the hope of eliminating the depressing effects of the long-continued use of the bromides as a possible factor in the cause of the loss of mental power. In none of the cases where the drug was so used were the results sufficiently favorable to continue its use. In some of these cases the patients did poorly, and the fits occurred so frequently as to demand a return to the bromide treatment.

In a third group of cases, where the bromides failed to give results in controlling the epileptic seizures, chloretone sometimes produced brilliant results. In a woman of forty-eight, suffering from Jacksonian epileptic attacks, secondary to a migraine, beginning in early childhood, the bromides after a time utterly failed to relieve the spasm of the head, neck, and arm. Chloretone was substituted seven weeks ago in fifteen-grain doses at night, afterwards reduced one-half, and the patient has had no attack since. Previous to that time the attacks occurred several times weekly, under large doses of the bromides. In other cases of true epilepsy, when the bromides had little, if any, effect, the seizures have ceased entirely for a time under chloretone.

We have in chloretone, therefore, a drug which, in selected cases, is an excellent substitute for the bromides. It is a drug which gives good results with decreasing dosage after the primary effect is obtained. In administering the drug it is usually put in capsules, and sufficient is given in the beginning to produce a hypnotic effect. In a large class of epileptic cases the fits occur most frequently at night, and one dose of fifteen or twenty grains is given at night until a drowsy effect on the following day is produced; if the desired result in reducing the number of fits is obtained, the dose is reduced one-half and the patient kept on this indefinitely. The dietetic, hygienic, and constitutional treatment is rigidly enforced in conjunction with the administration of the chloretone.

THE TREATMENT OF CHRONIC INTESTINAL CATARRH.

In the *International Medical Magazine* for August, 1901, REED asserts that the dietetic is the most difficult part of the treatment, and the most important. An almost exclusive diet of meat with a very free use of hot water—the pulp of lean beef or finely hashed beef or mutton, with just enough of lettuce or celery to act as a relish, and a slice or two of stale bread and butter daily—kept up for a few weeks, will often accomplish brilliant results in controlling catarrh, either gastric or intestinal; but there are important contraindications to such a regimen. When a dilated stomach, or one with a very poor motor power, coexists, as often happens, the large amounts of water will disagree unless given one glass at a time, and sometimes even then. When there is a very feeble heart, the superabundance of fluid involves dangers, and when the heart is enfeebled by gouty conditions—that is, overtaxed by forcing the blood through arterioles contracted by the alloxuric bases and other poisons produced in lithemia—there is the added danger that the overplus of meat will aggravate. Moreover, in patients having rheumatism or arteriosclerosis, as in the case of so many elderly persons, the meat diet often proves harmful.

But even in persons in whom no such contraindications appear it is not always safe, and the writer reports the case of a young lady who became insane as a result apparently of such a diet after a few weeks' use of it; and in any case it can scarcely be continued in a strict form longer than three or four weeks. Perfect nutrition demands a proportion of about three-fifths carbohydrates and one-fifth fats in the diet, and if the system be long denied a due allowance of these, the metabolism is disturbed.

When the meat diet does not suit, or when the intestinal catarrh persists, after trying it for a sufficient length of time, the best reliance will be upon good stale white or whole-wheat bread (not very coarse bran or brown bread) and butter, together with other cereal foods in a dry form, so as to require thorough mastication and insalivation. Thoroughly cooked rice and gluten preparations are allowable. Eggs, except when fried, can also be eaten once or twice daily, and good fresh lean fish may be taken. Fresh milk and a small or even moderate amount of cream are generally well borne, though there are cases in which they wholly disagree, and Boas taboos milk entirely in this affection. Scraped or hashed meat once or twice a day is desirable in most cases, and sometimes steak, chops, or even tender broiled ham in small quantities, well chewed, agree perfectly. Sugar and the fruits always aggravate in the severer cases, and when there is diarrhea should be rigorously prohibited. The vegetables are nearly as bad, and though a little celery, lettuce, asparagus tops, or even baked white potato, may not always seem at once to disturb, much of them at one time usually does, and the potato especially is likely to increase the fermentation. Summer squash, pumpkin, egg-plant, etc., may be cautiously tried in the lighter cases with constipation. All vegetables agree best in purées; most of them are positively hurtful in well marked cases of intestinal catarrh. As to beverages, alcohol should be generally avoided, but tea and coffee may be allowed in moderation, provided the patient be not lithemic. Chocolate and cocoa disagree on account of their accompanying sugar and large content of fat. Cereal coffee and hot water flavored with milk or otherwise to suit the taste are safe drinks, and in Europe a little claret is often allowed when the gastric juice is deficient. Iced drinks are injurious.

As to the other parts of the treatment, it is impossible to outline any definite course which will cure all cases. Indeed, in no field are experience, diagnostic acumen, an intimate knowledge of all the remedial measures, good judgment, and especially patience, so indispensable.

The fundamental requirements are to bring up the nerve tone and improve the circulation in the intestines by whatever means will best succeed. The most practicable and effective are, in general, the milder forms of outdoor exercise, including golfing, rowing, and horseback riding, together with massage (except when there is hyperchlorhydria, or a spastic condition of the bowels), electricity, and hydriatric procedures, such as colonic flushing with mild antiseptic or astringent solutions, and wet packs and jet douches to the abdomen. An equally important thing is to secure good drainage—perfect elimination through the bowels, kidneys, and skin. This can often

be accomplished by the above named measures and drinking freely—even copiously sometimes—of pure water, when this is not otherwise contraindicated. In some cases, however, a cautious use of the gentler and least irritating laxatives, such as olive oil, by mouth or enema, cascara sagrada, sulphur, or the salines (especially the phosphate or sulphate of sodium), will best effect this object. It is nearly always indispensable that there should be one complete evacuation every day, or at least every other day, but if possible this should not be loose —never watery. Even in the cases in which constant diarrhea has become established, flushing the colon with a normal salt solution, followed by injections of antiseptics, and when necessary also an astringent, such as a teaspoonful of bismuth to the pint of tepid water, nearly always gives better results than opiates and astringents by the mouth. These last are rarely necessary even temporarily, and used for long always do harm. Dr. Deardorff, of San Francisco, recommends in chronic colitis the injection every other evening of several quarts of a normal salt solution, and on the alternate evenings the following:

℞. Acidi carbolici, ʒiss;
Glycerini, fʒiij;
Listerin (vel. euthymol), q. s. ad fʒvj.

M. Sig.: Add two tablespoonfuls to two quarts of cool or tepid water and inject every other evening.

This has been used in numerous cases, with excellent results in nearly all. When there is persistent diarrhea, the massage should be light or omitted, and so also when there is constipation of spastic origin. The milder astringents, such as bismuth, need also to be given by the mouth when the bowels are persistently loose. In all stubborn cases the stomach should be tested by washing out or extracting the contents four to six hours after a meal, to ascertain the degree of gastric motor power and the character of the chyme being delivered into the intestines—whether or not well digested, and whether irritating from an excess of either free HCl or organic acids resulting from fermentation. When in this way we find the stomach contents excessively irritating from a too high acidity, we will naturally need to remove such a cause of the intestinal trouble before we can hope to effect a cure. The appropriate treatment of the gastric disease will need to be instituted, and if there be much stagnation, gastric lavage for a time will be indispensable.

Supposing the cause or causes to have been removed, the remedies already mentioned will rarely fail to control the symptoms except in the severest cases. When one or two loose stools recur every morning, very small doses of podophyllin—gr. 1-100 every three to four hours—act most happily in restraining it, and sometimes one-tenth-grain doses of calomel every two to four hours prove the most efficient means of stopping the offensive diarrhea which results as a complication from taking cold, or more often from some imprudence in diet. The same small doses of calomel given for one or two days in each week, or until bile-tinged stools result, are frequently more curative in chronic intestinal catarrh than any other medicine.

FUSEL OIL POISONING, WITH SPECIAL REFERENCE TO THE COPPER REDUCING SUBSTANCES ELIMINATED IN THE URINE.

In *American Medicine* of August 10, 1901, FUTCHER reaches the following conclusions from the study of the effects of the administration of fusel oil to dogs, and from observations on two cases of fusel oil poisoning:

1. Fusel oil, when administered to animals, causes the elimination in the urine of combined glycuronic acid, which reduces alkaline, copper, and bismuth solutions, and acts as a levorotation to polarized rays.

2. When taken by men it acts as a profound intoxicant, causing unconsciousness of several hours' duration.

3. In one of the cases it was followed by symptoms of hemiplegia.

4. In certain cases fusel oil is a profound blood-destroyer, and causes methemoglobinuria.

5. In both cases it caused transitory nephritis.

6. In both patients a glycosuria lasting two or three days was produced.

7. In the two cases there was fairly conclusive evidence that combined glycuronic acid (gepaarte Glukuronsäure) was present in addition to glucose.

ON THE TREATMENT OF GASTRALGIA.

In *Treatment* for September, 1901, SAUNDBY tells us that when the general health has been reestablished, attention to the causes of gastralgia should suffice to prevent a recurrence of the pain. These patients must be told to take three good meals a day, and be warned against fatigue and the abuse of the nerve-destroyers, tea and tobacco, which in certain cases must be absolutely forbidden. If rational treatment is impossible, and it is necessary to use palliatives, benefit may be derived from iron, quinine, arsenic, nux vomica, and mineral acids as general tonics, while the pain is relieved by small doses (one-eighth to one-sixteenth of a grain) of morphine or heroin hydrochloride:

Morphine or heroin hydrochloride, ⅛ grain;
Water, 1 teaspoonful.

Chloral relieves the pain, but often causes drowsiness, while phenacetine and other allied analgesic remedies at times prove useful, but are somewhat uncertain. The use of morphine or heroin given in the above doses is strongly recommended, but if neither succeeds the dose should not be increased, but some other means should be tried of allaying the pain to avoid the risk of encouraging the opium habit.

The pain that comes on after food seems more likely to be confounded with organic disease of the stomach. The typical kind of gastralgia belonging to this class is that met with in anemic girls, where pain directly follows the swallowing of anything, and closely resembles that of ulcer of the stomach. The two conditions are, indeed, very difficult to differentiate, but in the purely nervous cases the pain is perhaps more constant, less dependent upon the quality or quantity swallowed—a drink of water, for example, being quite sufficient to set it up—whereas in gastric ulcer the pain is generally only caused by solid food. Vomiting and consequent relief of pain takes place in both cases, but in gastralgia there is no hematemesis, although a little blood may be expectorated, derived from the pharynx or gums. As hysteria is not an uncommon feature of these cases, the diagnosis should be made cautiously. For this purpose, as well as for successful treatment, the patient must be put to bed and given only such quantities of milk and lime-water as the stomach will tolerate without pain; for example, one ounce every hour. If pain is still experienced, the stomach should have a complete rest, and the patient be fed by nutrient enemata. The simplest and best nutrient enema is composed of one egg beaten up and made up to four ounces with milk. Such an enema must be given every four hours. As a rule rest in bed at once calms the pain and makes the stomach more tolerant. It is rare for vomiting or pain to persist after the first twenty-four hours. The amount of milk should be rapidly increased, and by the gradual addition of more substantial articles ordinary diet is reached at the end of about three weeks. At times milk fails, and lightly cooked minced meats must be substituted, two to four ounces every four hours, with somatose or plasmon, a teaspoonful dissolved in water every four hours, so that every two hours the patient gets food. At the same time the anemia is treated by the administration of iron in the form of pilula ferri. Sulphate of iron and sulphate of magnesia mixture may be taken three times a day:

Magnesium sulphate, 40 grains;
Ferrous sulphate, 2 grains;
Diluted sulphuric acid, 3 minims;
Peppermint water, enough to make 1 ounce.

As an alterative we may order Rubinat water every morning to maintain a daily movement of the bowels. In addition it is very desirable to provide general massage for these cases while they are at rest in bed. Rest in bed may be difficult to secure, but should be insisted upon in the interests of the patient.

Pain after food may be neuralgic but associated with organic derangement. In women the commonest cause of pain is gastroptosis. The falling of the stomach causes a sense of dragging or weight at the epigastrium, and if the viscus is distended with CO_2 (sodæ bicarb. 120 grains, tartaric acid 90 grains, dissolved in a little water and given consecutively) the great curvature of the stomach will be found often nearly down to the pubes, while the small curvature is on a level or just a little above the umbilicus. As such patients are generally neurasthenic their pain is often regarded as merely neuralgic, and the organic derangement is overlooked.

The palliative treatment of gastroptosis is to make the patient lie down for an hour after each meal, to wear a light abdominal belt, and to order:

> Dilute hydrochloric acid, 15 minims;
> Tincture of nux vomica, 10 minims;
> Fluid extract of cascara, 10 minims;
> Infusion of gentian, enough to make 1 ounce.

This is to be taken immediately after each meal. The amount of cascara may be increased or diminished as required, but these patients are generally constipated.

It is not easy to say with certainty that the pain which is associated with chronic gastric disease is or is not purely nervous, but there are cases in which it persists in spite of all our care in dieting and the general improvement of other symptoms. The presence of nervous signs may make the diagnosis of gastralgia not improbable, but the case is not a pure neurosis. These are undoubtedly the least satisfactory cases to treat. They generally occur in elderly persons, and some of them turn out in the end to be cancer; in others there may be an ulcer of the pylorus or duodenum, which is only eventually revealed by causing hematemesis or perforation. The most careful examination of the stomach should be made so as to exclude organic disease. This implies an investigation of its chemical and motor functions, as well as careful noting of the size, shape, and position when distended by CO_2.

The rational treatment is to do all in our power to improve the digestion and general health. Look to the teeth, which are often defective; to the mastication of food, to the quality and quantity of the diet; secure, if possible, rest, change of scene, bracing air, and check the abuse of tea and tobacco. The following mixture may be given before each meal:

> Carbonate of bismuth, 10 grains;
> Carbonate of sodium, 10 grains;
> Mucilage of tragacanth, 15 minims;
> Distilled peppermint water, enough to make 1 ounce.

This should be taken regularly before each meal, and constipation must be overcome by an early morning dose of Carlsbad salts or Rubinat water. These are the least definite of the cases entitled to be called gastralgia, and are also the least satisfactory in their prognosis and treatment.

A NOTE ON THE TREATMENT OF THE ATAXIA OF TABES BY MEANS OF COORDINATE EXERCISES.

In the *Edinburgh Medical Journal* for September, 1901, BRAMWELL gives the following directions:

Exercises for the Lower Limbs (While in Bed).—The patient lies on his back in bed and slowly raises his extended leg until he touches with his great toe the finger of the attendant held immediately above his foot, at a distance of eighteen inches to two feet from the bed. This exercise should be repeated several times with either leg.

Still lying on his back, he flexes his leg on the thigh to its full extent, and then slowly flexes the thigh on the abdomen; the whole limb is then gradually extended until he touches with his great toe the finger of the attendant, which is held in the same position as in the previous exercise. The limb is then slowly lowered to the bed.

For the next exercise a simple piece of apparatus is necessary, namely, two boards 3½ feet long and 9 inches in breadth. One long edge of board A is attached along the middle of B, so that, looked at from the end, the extremities of the board form the letter T, the limbs of the T corresponding to the breadth of the boards, namely, nine inches. The apparatus is placed across the foot of the bed, resting on board B. Along the unattached edge of board A are six grooves 1½ inches deep, 3 inches in width, and at a distance of 3 inches from each other.

The patient lies on his back with his heels resting in two of these grooves; at the word of command he lifts one heel from the groove in which it lies, and places it accurately in the groove named by the attendant. For this purpose it is convenient to have the grooves numbered; they, too, should be well padded.

Standing Exercises.—A very ataxic patient who has been long confined to bed has forgotten how to stand, and when helped out of bed his legs slide away from under him. His feet are to be placed in position, and, with some one supporting him on either side, he is to be encouraged to practice his balancing power, gradually putting more and more weight upon his legs. He is to practice standing with his feet close together, lifting one foot off the ground and placing it down again accurately.

Other and more difficult exercises are the

following: Standing with eyes closed and feet close together, standing on tiptoe, standing on one foot with closed eyes, etc. Sudden giving way of the legs is a symptom which may prove troublesome when an ataxic patient first begins to stand and walk. Even where there is not a high degree of ataxia, this symptom is sometimes present. The writer has found that the support which may be obtained by bandaging the knees firmly is of value in such cases.

Walking Exercises.—A black stripe 12 inches broad is painted across the floor of a room or on a piece of wax-cloth. The patient walks along this stripe, either with support or in the go-cart, taking care to keep his feet within its margins. He may walk with bare feet or with his boots on; the former he will probably find the more difficult. Having mastered this exercise, he practices walking along a similar stripe, on which at distances of one foot cross lines are painted. This is more difficult than the last exercises, for here he has not only to keep his feet within the limits of the black stripe, but whenever he takes a step the toe must be placed down exactly at the cross line. This exercise is very important, since by teaching the patient to take steps of regular length it necessarily greatly simplifies the coordination required in the act of walking.

There are two features of the tabetic gait which are often noticeable even when the ataxia is slight: first, a tendency to bring the heel to the ground before the toe—in other words, to walk upon the heels; and secondly, a tendency for the patient to turn his toes outward when he walks. Special attention is to be directed to the correction of these points.

When the patient has acquired skill in the exercises already described, he proceeds with similar exercises upon a narrower stripe (six inches in breadth); as he is now obliged to walk upon a "narrower base," this exercise is more difficult than that last mentioned.

The patient is to practice walking sideways along these stripes, and turning round within a circle of small radius. Having attained proficiency in the above, he may attempt the same exercises on tiptoe or with bent knees.

According to the degree of ataxia, support may or may not be necessary in carrying out all these exercises. Thus at first the patient may require some one on either side to prevent him falling, or he may be able to walk the lines with the go-cart. As he improves, he is able to walk with sticks, and finally unaided. The "step" from walking in the go-cart to walking with sticks is a difficult one, and improvement is often delayed at this point; more especially is this the case with patients who have little confidence in their own capabilities, and will risk nothing. The writer has found a pair of low parallel bars of great service at this stage. The patient walks between the bars and in this way learns to do with less and less support, gaining the confidence in his own powers which is necessary when he first begins to walk with sticks.

As soon as the patient has learned to walk on level ground fairly steadily and confidently, he may be taught to walk up and down stairs. In a hospital, where cases of tabes are constantly being treated, a specially constructed staircase of several steps, three or four feet in breadth, will be found of value. With a rail in each hand the patient sooner acquires confidence, and makes more rapid improvement than on an ordinary staircase. In a private house, where such a staircase is not available, he will probably at first require the support of an arm while he holds the banister in his other hand. Each step has to be taken just as carefully as when he walks on level ground. A tabetic is not uncommonly to be seen going upstairs in the following fashion: he raises the foot and puts it down on the next step correctly; then, instead of taking the step by contracting his quadriceps, he straightens the leg, and, using it as a lever, pulls himself up by the aid of his hands. He has forgotten how to use the legs when going upstairs, and until his error is pointed out he will make no progress.

Again, the patient must practice sitting down and getting up from a chair. A chair with arms will be found useful for this purpose, or, better still, a seat placed between parallel bars. He is to persevere with this exercise until he can sit down perfectly naturally.

A great number of exercises have been recommended for the upper limbs. The physician may devise exercises suitable to the peculiarities of any case he meets with, and provided that he adheres to the prin-

ciples of the treatment he will obtain good results. Such exercises as piling draughts one upon the top of another, placing marbles of different size into the numbered cups of a solitaire board, drawing patterns and figures, connecting with a pencil points marked out on a large sheet of paper, etc., will be found to be of use.

The length of time daily which should be given to the exercises must depend on the individual case. A quarter of an hour, two or three times a day, will probably be sufficient at first. In less severe cases more time may be given to practice. After each exercise the patient should take a short rest. An exercise must be stopped on the earliest appearance of fatigue, or if there are any signs of the patient's attention beginning to wander. Clinical and experimental evidence are in accord as to the harmful effects of muscular overexertion upon the degenerative process in the posterior columns. In this relation it is well to remember that tabetics have not unfrequently lost, to some extent, the sense of fatigue.

Fraenkel attaches great importance to the alacrity with which a movement is performed upon the word of command. He insists that if good results are to be obtained the physician must personally superintend the treatment, to keep up the interest of the patient, to encourage him, and to point out his difficulties.

From these remarks it will be seen that patience and perseverance on the part both of the patient and the physician are required if full benefit is to be derived from the treatment.

TRACHEAL INJECTIONS.

Some years ago we printed a paper by Dr. THOMPSON, of Cincinnati, upon this theme. In the *Lancet-Clinic* of August 31, 1901, he tells us further about it.

A word as to the technique may not be out of place. The larynx is illuminated in the ordinary way. The patient holds his own tongue while the physician guides the tip of a properly curved laryngeal syringe back over the glottis. Then while the patient takes a slow, full inspiration the medicine is injected between the cords and into the trachea. It is not necessary nor advisable in the ordinary treatment to touch any part of the larynx with the tip of the syringe. If the patient will follow directions as to the method of breathing the injection is very easily given. In only a few cases of people with very little self-control will it be found impossible to give effective injections. The amount of coughing and strangulation produced is very slight. So little reflex action takes place that the writer has been told a number of times by physicians who have watched the injections given that he had certainly not put medicine into the trachea. With a patient accustomed to the method he has no difficulty in convincing these scoffers by showing them, with the aid of the laryngeal mirror, the stream of medicine dropping into the trachea. There is an apparatus now on the market for throwing solutions directly into the trachea by means of compressed air.

The advantages to be secured by direct medication are, first, we get the direct local action of the remedy. From work in the nose and pharynx we know pretty accurately what effect certain remedies will have on inflammation of the mucous membrane of those cavities. It is reasonable to expect the same effect when we can drop the medicine directly into the trachea and bronchi on the mucous membrane of these structures. We cleanse, soothe, and partially sterilize the mucous membrane of the nose and throat by direct applications. The same results can be obtained by the same remedies on the mucous membrane of the lower air tract. In addition to this direct local action, we gain a very marked constitutional effect from remedies injected directly into the lungs. The pallid, cold extremities of the tuberculous patient will be flushed and warm within a few minutes after an injection of a menthol solution, and this stimulating action on the circulation is kept up for hours.

Another advantage of treatment by direct injection is that our medicines reach the diseased area unchanged by chemical action in their passage through the digestive organs and the blood. In this method we know definitely what we are applying to the mucous membrane of the lungs. We do not know in what form our remedies reach the same structure when given internally. Another and very important advantage is that medicines given by direct injection do not unfavorably affect digestion and nutrition. They are so much more effective when applied directly to the inflamed organs that we can dispense with narcotics for the con-

trol of the cough even in bad cases of acute inflammation or in advanced cases of chronic tuberculosis. Every careful physician dreads the day in consumption when he must decide which will do the least harm, to give his case opiates or allow him to be racked by the cough and weakened by the pain. With symptomatic direct medication to the lungs the cough can be controlled without opiates, and they are needed to relieve pain only in secondary pleurisy.

These advantages show that there are a number of diseased conditions to which direct medication is applicable. In the very early stages of acute bronchitis, where the membrane is dry and highly inflamed, the injections are harmful and should not be given. The old-fashioned remedies, such as Dover's powder and a good sweat, are more helpful here than direct medication. A little later in the case, when free expectoration has begun, the direct treatment is much more valuable than any given in the ordinary way. The duration of an ordinary case of acute bronchitis can be shortened one-half by direct injections. In those cases bordering on the chronic variety, where the cough has existed for several weeks and resisted all internal medication, the cure is usually prompt and easy by the injection method. In chronic bronchitis there is no comparison between the results to be obtained by direct injections and internal medication. There is an immediate amelioration of symptoms as soon as the injection treatment is begun. The cough and amount of expectoration lessen as though by magic. In cases with dilated bronchi, the walls of which are suppurating, giving rise to an offensive purulent discharge, little or no benefit is gained by internal medication. A few injections in these cases relieve the patient of the offensive odor and rapidly diminish the amount of pus secreted. Should there be no organic lesion in other portions of the body, a cure of chronic bronchitis is only a question of the patient's willingness to continue the treatment. The writer has never found a case that was willing to return to internal medicine after a few effective tracheal injections had been given. Chronic bronchitis is a feature of other diseases where the symptoms can be greatly relieved by the cure of the bronchitis by tracheal injections. Almost every case of chronic asthma also has chronic bronchitis. A cure of the bronchitis results in a marked lessening of the frequency and severity of the attacks of asthma, if it does not entirely prevent their recurrence. Cases of asthma with pulmonary emphysema can also be benefited by the cure of the chronic bronchitis by means of tracheal injections, and apparently hopeless cases have been kept alive and comfortable for years by the use of the injection treatment whenever an asthmatic paroxysm or an attack of acute bronchitis threatened to cut short the career of the sufferer.

The observing laryngologist will see many cases of chronic inflammation of the mucous membrane of the trachea when physical examination gives no sign of similar troubles in the bronchi. The writer has never been able to see anything in the course of these cases that convinced him that remedies given internally had any effect on the inflammation of the tracheal mucosa. The cough, mucopurulent discharge, and burning sensation behind the sternum can all be very promptly cured by direct medication. In pulmonary tuberculosis tracheal injections are not directly curable—that is, they have no direct toxic action on the tubercle bacillus, and probably have little effect on the infiltrated areas. They do have a very marked curative action on the bronchitis that accompanies this condition, and by relieving this complication they very greatly lessen the cough and expectoration. Where the infiltrated areas have begun to break down in the lung and the usual secondary infection by germs of suppuration has taken place, tracheal injections will disinfect these cavities and greatly lessen the amount of suppuration and absorption of decomposed products. By so doing the fever, which is a septic fever, is greatly lessened. The danger of secondary laryngeal tuberculosis is greatly lessened if we diminish the cough and the amount of infective expectorated matter that must pass through the larynx. Pulmonary syphilis is, fortunately, a rare condition.

The most effective medicines for use by this method are those which are volatilized slowly by the temperature of the body so that their vapors reach all portions of the lungs. In this class first place should be given to menthol, camphor, creosote, and guaiacol carbonate. They should be dissolved either in one of the light petroleum oils or in olive oil. Two-per-cent solutions of the menthol or camphor, singly or combined, can be used without pain or irritation. The carbonates of creosote and guaiacol are

painful if more than one-per-cent solutions are used. Of these remedies, from two to four drachms of the solution can be employed for each injection.

The longer the author employs this method of treatment the higher becomes his estimate of its value. He believes that by ignoring or neglecting the use of direct medication for inflammatory or infective conditions in the throat and lungs physicians are depriving themselves of the most efficient means of treatment.

TOPICAL TREATMENT OF FOCAL AND JACKSONIAN EPILEPSY.

The results of operation in true focal or Jacksonian epilepsy are, in the opinion of WHITE *(University of Pennsylvania Medical Bulletin,* June, 1901), not so encouraging as to justify ignoring the greatly increased risk and the postoperative paralysis following excision of the epileptogenetic center, without which the trephining becomes an incomplete and unsatisfactory operation. White concurs in Clark's statement that idiopathics in whom seizures are of the Jacksonian type should be trephined only when infantile palsies can be excluded, and when the family and personal degeneracy is at a minimum. If the operation is determined on in such cases, a very thorough removal of the epileptogenetic area should be made, and even then but a fraction of one per cent recover from their epilepsy. It might be added that the operation, apart from its crippling effect, is sure to have a considerable mortality. To lessen this risk to life and to try to secure the chance, perhaps slight, of cure or amelioration without paralysis of important muscular groups, or of entire limbs, White employed a method of his own devising, but which he thinks should be submitted to further trial and elaboration.

The relation of the affected center to the cranium is indicated by a silver or iodine mark upon the shaven scalp two days before the operation. The scalp is sterilized four times at intervals of twelve hours, not only before the trephining, but also before each subsequent application of the treatment. A horseshoe-shaped flap is raised and a half-inch button of bone removed with a small trephine. The dura is left intact. Thirty minims of a sterile two-per-cent solution of eucaine is then injected into the brain substance at the center of the trephine opening, the point of the needle being introduced about three-quarters of an inch. The needle is gradually withdrawn as the last ten minims of the solution is injected. The flap is replaced. The patient is returned to bed, and on the day of operation, and the following day, should receive full doses of bromides. At intervals, determined by experience, the scalp having been sterilized as above told, the injection is repeated. The patient should be kept in bed at least four hours after each injection, and should take bromides for from one to two days.

In one of the two cases in which this method has been tried, the prominence of pain as a symptom led White to disregard the contraindication furnished by the history of infantile paralysis. A study of the two cases does not show that the entire safety of the procedure is established, nor do the results appear to be noticeably better than other operations in such cases. There are, however, in the opinion of White, possibilities by this line of treatment which appear to justify him in placing it before the profession conservatively.

ALUM ENEMA IN THE AFTER-TREATMENT OF ABDOMINAL OPERATIONS.

The one complication in abdominal surgery, says HARDON in the *American Journal of Obstetrics* for June, 1901, which claims as large a percentage of victims to-day as it did ten or fifteen years ago is intestinal paresis. It is due, according to the best authorities, to exudative peritonitis, even though it is also agreed that free movement of the bowels causes the symptoms to disappear, and the rapid recovery of the patient.

Epsom salt, where vomiting is not a prominent symptom, is the best internal remedy. Catharsis by hypodermic medication has often been attempted, but without success. The ordinary enemata of soap and water, ox-gall, turpentine, and other substances are sometimes effectual at the beginning of the abdominal distention, but usually fail after the symptoms have become well pronounced. Hardon, however, has found a plan of treatment which has proved so satisfactory in his hands that it has entirely superseded all others.

He describes a case where Epsom salt, calomel, soap and water, castor oil, glycerin, turpentine, and ox-gall were successively used without avail. The case was about given up as hopeless, when it occurred to him to see

what effect would follow the injection of alum into the bowel. A solution of an ounce of powdered alum in a quart of warm water was injected into the rectum, and in ten minutes flatus escaped from the rectum. In an hour the enema was repeated successfully. The patient was practically convalescent on the following day.

Since this case Hardon has used the alum enema in hundreds of cases, and always with equally good results. Sometimes it is necessary to repeat the injection before it will act, and this can be done with safety an indefinite number of times. There is sometimes some pain, not severe, attending its use. Injected like any other enema, probably in no instance does it go above the sigmoid flexure. Hardon has come to regard as of no importance the throwing off by the bowel of a tubular cast, which he has found is composed simply of mucus whose albuminous elements have been coagulated by the alum.

The alum seems to have as specific an action in inducing intestinal peristalsis as has castor oil when taken into the stomach. It does not produce a serous exudation from the intestinal walls, and for that reason Hardon prefers it to Epsom salt when the stomach will retain it.

The author says that during the nine years in which he has used the alum enema his percentage of mortality in abdominal work has been a little less than one-half of what it was during the preceding seven years. A wide margin of this absence of mortality may be reasonably attributed to the effect of the alum enema in eliminating intestinal paresis as a cause of death.

RADICAL OPERATION FOR LARGE VENTRAL HERNIAS.

SALISTSCHEFF *(Centralblatt für Chirurgie,* No. 13, 1901) again has recourse to transplantation of muscle flaps for the radical cure of large ventral hernias, and reports two cases which, for the short time that they have been under observation, seem to have been permanently cured.

The first patient was suffering from a rupture through the upper part of the left rectus muscle, incident to the transverse division of this muscle some three months before in an attempt at suicide. The hernia was about the size of a fist. The two ends of the sectioned muscle lay about three inches from each other. An incision was made through the rupture, the hernial sac was removed, the peritoneum was closed by a continuous suture, and flaps of half the thickness of the rectus muscle were turned up and down, so that the defect in this muscle was completely closed. Six months later a firm contractile wall was found in the position of the former hernial aperture, and one which was amply strong enough to withstand the intra-abdominal pressure.

The second patient had a hernia about the size of a man's head protruding through the left abdominal wall, a little to the outer side of the sheath of the rectus muscle, incident to an extensive wound inflicted about five years before. The superfluous skin and hernial sac were removed and the peritoneum was closed by suture. The sheath of the rectus was then opened, and its anterior part dissected free from the muscle. A flap six and a half inches long, made up of half the thickness of the rectus muscle, attached below was freed, drawn outward, and made to close the defect in the abdominal wall. Its free borders were sutured to the freshened external oblique and transversalis. Four months later the patient seemed absolutely cured.

DECORTICATION OF THE LUNG FOR CHRONIC EMPYEMA.

Decortication of the lung, a term applied to designate a procedure to relieve the lung from its environment in cases in which expansion is prevented or interfered with by the presence of a greatly thickened pleural covering, was first performed in 1893 by FOWLER, who describes an operation in the *Medical News* of June 15, 1901.

A male, eighteen years old, was admitted to the Brooklyn Hospital for an empyema of several weeks' standing. Ordinary tube drainage following the removal of about an inch of rib was instituted. At the end of four weeks the cavity was still discharging copiously with no disposition on the part of the lung to reexpand. At this time Estlander's operation was performed, four inches each of the sixth and seventh ribs being removed. At the end of another month it was found that, while the anterior part of the chest wall had fallen sufficiently below the normal level to partly obliterate the cavity, the posterior part had not yielded, and a large cavity still remained, with a dense transverse partition consisting of the greatly thickened visceral pleura forming a floor upon which the base of the lung rested,

and which prevented it from descending below the level of the third rib. Posteriorly the visceral pleura was firmly attached at a somewhat higher level than anteriorly, which left a pus cavity about the size of a man's fist. Decortication of the lung with total pleurectomy was performed on May 30, 1901. Because of the patient's condition it was decided to employ spinal cocainization. The patient refusing to remain quiet for the spinal puncture and injection, to remedy this difficulty, after cocaine infiltration of a small area at the site of the intended puncture, a few drops of chloroform (15) was administered, and while under its influence the spinal injection was made, one grain of the cocaine sterilized with chloroform and dissolved in forty minims of sterilized water being employel. Immediately the table was lowered to facilitate the passage of the cerebrospinal fluid mingled with the cocaine solution to the upper part of the spinal canal. In a few minutes all parts of the body below the level of the clavicle were absolutely insensitive to pain, and the operation was begun.

An obliquely placed, elliptical-shaped incision six inches in length, running parallel with the site of the previously resected sixth rib, and enclosing a large fistulous opening and adjacent granulating surface, was made. At the anterior extremity of this incision a vertical cut two and one-half inches long was made in an upward direction, and from the posterior extremity a similar cut was made in a downward direction. The two three-cornered flaps thus marked out were dissected from the chest wall, including the entire thickness of the latter to the ribs. The already existing opening in the bony wall of the chest was then enlarged by the resection of five inches of each of the third, fourth, and fifth ribs. The attempt was made to dissect off the visceral layer of the pleura first, but this was found to be so intimately adherent that it was left until the last, and the costal and diaphragmatic pleura removed first. This was accomplished by the aid of the fingers and blunt scissors without great difficulty, when the strongly adherent costal attachments of the visceral pleura having been loosened, the lung expanded sufficiently to bring the parts well within reach and enabled Fowler to readily dissect the visceral layer of the greatly thickened pleura from the lung, after which the entire mass came away. The two three-cornered flaps were then brought into place and sutured, with the exception of a small opening left anteriorly through which was led the projecting end of a gauze tampon which was lightly packed between the base of the lung, which by this time nearly filled the entire right chest, and the diaphragm. The operation lasted one hour and a quarter. The analgesia lasted up to the time of the application of the last three sutures. The patient left the table in excellent condition, and up to the time of writing pursued an uneventful progress toward recovery.

In the literature on the subject it appears that the term "decortication of the lung" has been applied in all cases in which the attempt has been made to release the lung from its thickened pleura for the purpose of promoting its expansion. A further and most important purpose is that of removal, as completely as possible, of the entire thickened and degenerated pleura with its septically involved structures, to insure rapid healing and early obliteration of the empyemic cavity. The first of these indications may be sometimes fulfilled by visceral pleurectomy with more or less detachment of the adherent and thickened pulmonary membrane, and relatively good results may be obtained by this procedure, even in cases in which the lung does not fully expand at first. In all cases in which visceral pleurectomy has been performed and recovery has taken place, both rapid healing and complete reexpansion of the lung was accomplished, while in those instances in which visceral pleurectomy with partial detachment seems to have been done, and where the patient survived the operation, four of the recorded cases failed of complete expansion, and in one the fistulous track remained unhealed. It cannot be denied, nevertheless, that cases will arise in which the difficulties may be impossible to overcome in attempts to remove entirely all thickened pleura, or even detach the visceral portion. These difficulties are unquestionably increased by the presence of tuberculous deposits in the lung tissue adjacent to or involving the pleural covering. Under such circumstances it is advisable to discontinue the effort to release the lung.

Ample access to the pleural cavity is to be secured by turning a flap of the soft parts so as to expose two or more of the ribs. The size and shape of the flap will be governed by the position and dimensions of the cavity and the relations of the lung to the thoracic wall. If a fistula exists, at least one and if possible two ribs above this point should be

resected. Immediately upon opening the pleural cavity rapid curettage accompanied by irrigation by means of boric acid or potassium permanganate solution should be done. If spinal cocainization is used the patient may be directed to inflate the lungs at will. Excessive hemorrhage must be kept in check and unnecessary dissection avoided. Care should be taken not to injure the lung when incising the visceral pleura. A small incision to ascertain the thickness of the pleura should first be made, and this subsequently enlarged upon a grooved director. If the lung shows a marked tendency to become herniated at the site of the first incision so as to embarrass further manipulation, a second opening may be made and the decortication carried on from this point. After the peeling-off process commences, the fingers of the operator and a pair of blunt scissors are alone needed to complete the decortication. The bleeding is held in check by crowding gauze behind the blunt scissors, or the fingers of the operator, if these are used. By following up the track of the scissors or fingers in this manner surprisingly little blood will be lost. In cases uncomplicated by tuberculous deposits, and particularly where a fistulous track exists passing through a mass of cicatricial tissue and degenerated pleural membrane, the operator may be encouraged to attempt complete removal of the latter. The operation may be completed by light tamponade with gauze and suture of the flap in part.

A study of thirty operations by several different methods shows that eleven have been cured, six improved, nine unimproved, three have died, and one case remains in doubt.

The conclusions of Fowler's study of the subject are: (1) The operation is adapted to all cases of old empyema in which extensive and preoperatively discoverable tuberculous lesions of the lungs are not present, and in which the patient's condition will permit a major operation. (2) It is a more rational procedure than Estlander's operation in a majority of instances. (3) It should replace Schede's operation in all instances. (4) The method by extirpation of the diseased part of the pleural membrane, including the visceral, cortical, and diaphragmatic parts, is the operation of choice. (5) Failing the last, visceral pleurectomy should be chosen. (6) Pleurotomy, with simple detachment of the visceral layer of the diseased pleural membrane, gives sufficiently good results to warrant a resort to it where the patient's condition will not warrant the application of the other method. (7) Whatever method is adopted, as complete access to the cavity of the chest as possible should be obtained, and rapid closure of the opening in the chest wall afterward secured, since the complete reexpansion of the lung must depend largely upon the normal respiratory movements. (8) Pulmonary or respiratory exercises should not be neglected in the after-treatment, since these aid greatly in the restoration of the function of the lung.

RETENTION OF URINE.

Retention of urine by the bladder in male infants, says HEATH (clinical lecture reported in *The Lancet,* June 8, 1901), is sometimes due to a tight foreskin. In such a case dilatation of the orifice is the best treatment. Later in life a child may have a calculus causing retention, and if the stone lodges it will be found near the meatus, from which place it can be removed by forceps. It has been suggested to make a nick in the orifice, and if this is done the nick should be made downward. Heath has known threads tied round the penis by children, to keep themselves from wetting the bed, to cause retention.

Retention in cases of young adults is generally the result of gonorrhea. In these cases examination should be made of the rectum, using the finger, to see if there be a tender and somewhat enlarged prostate. Matter may be detected, and if so the abscess may be opened into the rectum or through the perineum. If matter be not detected it may be necessary to pass a catheter, which, if carefully introduced, will probably pass the prostate and may burst the abscess into the urethra and do all that is wanted for the case.

The spasmodic variety of retention in gonorrhea is generally due to an unwise indulgence in intoxicants. In such cases the simplest and best plan is to slip a catheter into the urethra, doing as little damage as possible. If the catheter goes in a little way but will not go into the bladder, an old-fashioned stylet passed down the soft-rubber catheter will give a command of the instrument, which will then go into the bladder to draw the urine off. The patient may then be given a little opium and sent away. Failing to reach the bladder, the best thing to do

is to put the patient under chloroform, when the spasm at once relaxes and the instrument is able to reach the bladder. Where a catheter is not convenient, the patient may be given some laudanum, and have hot fomentations applied to the lower part of the abdomen. In the course of one or two hours the urine may begin to pass. Heath finds no advantage in the hot bath as an aid to the passage of a catheter when chloroform is handy.

Another cause of retention of urine is the failure of a patient, generally suffering from repeated gonorrheas, etc., to pass a catheter at intervals as directed by his physician. The first thing should be an attempt to pass a very small catheter, after which the size of the passed catheters should gradually increase. A small catheter tied in for twenty-four hours dilates the stricture, and will allow of the passage of a larger instrument the next day. Failing to get a softer instrument through in these cases, which if not relieved produce much suffering, with great care and gentleness, for fear of injuring the walls of the urethra, a silver catheter should be passed. In such cases the instrument should be tied in for twenty-four hours. If a previous operator has made a false passage, injuring the urethra, the instrument can be guided in on the middle line if, the catheter having passed the stricture in front of the triangular ligament, the left forefinger be placed in the rectum so that the instrument can be pressed upward and placed on the top of the finger.

In the case of an impermeable stricture, found to be so after all methods of catheterization have failed, the best treatment is to aspirate above the pubes. If the surgeon is anxious to cure the stricture at once, the safest operation is that of Wheelhouse. The straight staff with a hook at the end is pushed down the urethra to the stricture, and a free opening in the urethra is made above the stricture. The incision is widened by forceps, the hook of the staff is turned round, and the staff is then withdrawn so that its extremity acts as an upward retractor of one angle of the wound. With a probe-shaped director the stricture is then found and brought into view. It is divided by a probe-pointed bistoury, and then a pointed gorget is passed along the director into the bladder, when a catheter can be passed along the whole length of the urethra and upon the gorget into that organ.

Retention from atony of the bladder, the muscular coats of the bladder being so weakened by continued distention that they fail to contract, is a condition of things not often recognized. If the patient complains of dribbling, an instrument must be passed, which will probably produce evidence that the bladder is full. When the urine has been drawn, a catheter should be passed every six hours for some days until the bladder gradually recovers. The administration of strychnine is very useful under these circumstances, helping to tone up the bladder; but if it is found that the patient does not recover power of micturition it is a good plan to use the electric current to stimulate the organ.

Retention from enlargement of the prostate, a disease of old age, should be treated first with soft-rubber catheters, which, if unsuccessful, should give way to a French elbowed catheter of a good length, because the urethra in these cases is apt to be longer than usual. If such an instrument is not at hand, the old-fashioned English catheter is very useful, used with or without the stylet. If used with a stylet the end must be bent well down. After it is introduced and it is difficult to push it further on, the stylet should then be withdrawn, when the catheter end will curl upward, and in a majority of cases the bladder can thus be reached. The urine drawn off is in most of these cases bloody. It is astonishing sometimes how easily a silver catheter gets past a difficult obstruction which no elastic catheter has been able to overcome in these cases, especially where a preceding operator has failed by the means above described to draw off the urine. It is well to use a silver prostatic catheter. It is a large curved instrument, and it is passed on steadily up the urethra until some obstruction is met; a finger is then put into the rectum and the end of the instrument is tipped up, when it should pass on into the bladder easily.

It may happen in a prostatic case that there will be considerable hemorrhage into the bladder, and large clots may form, practically filling it. Such a patient may be put under the influence of opium to relieve the spasm; then the urine will break up the clot, and a catheter should be passed only night and morning.

Prostatectomy for enlarged prostate, because of the risk of hemorrhage and the liability to septic troubles, has practically fallen into disuse. Removal of the testicles, recommended by White, in some cases leads to a

considerable affection of the nervous system, and there has been an uncomfortable number of suicides after this operation. The best operation, Heath believes, is that of Harrison. A piece of the vas deferens on each side is taken out; this prevents any flow of the spermatic fluid into the urethra, leading to atrophy of the prostate, but at the same time leaving the testicles untouched.

Retention of urine in the female occurs most generally in connection with pregnancy. A full bladder should not be overlooked; if there is the slightest doubt the catheter should be passed. If the uterus becomes retroverted or even retroflexed the bladder may be affected and retention caused.

The great secret in the treatment of what may be called hysterical retention, as when a young girl holds her urine a little longer than usual and then says she cannot pass it, is not to introduce the catheter. The patient may be put in a hot bath and urged to micturate. If she will not, cold water should suddenly be dashed over her head and shoulders. This will most certainly have the desired effect.

OPENING OF THE SPHENOIDAL SINUS THROUGH THE HEALTHY MAXILLARY ANTRUM.

FURET (quoted in the *St. Paul Medical Journal,* June, 1901), stimulated by the example of Jansen and Luc, who have reported cases of empyema of the maxillary antrum, where after a broad opening into the cavity had been made it was possible to see and operate on the anterior wall of the sphenoidal sinus, has carried the matter a step further by proposing to open the sphenoidal sinus through the maxillary antrum, whether the latter cavity be sound or not. The operator must be certain that he has entered the real sphenoidal sinus, for in many cases the profuse bleeding may mislead him, when actually he has only opened an unusually large posterior ethmoidal cell. It happens not so very rarely that a dilated ethmoidal cell may seem to extend down and in a measure cover in the sphenoidal sinus, and then an error is almost unavoidable.

The result of an operation reported by Furet is said to have been most satisfactory. The patient was relieved of her headaches and was soon able to resume her former employment.

The author believes his method should be adopted when the maxillary sinus itself is involved in the inflammation; in every sphenoidal sinusitis with cerebral complications; and in every case where the nasal fossæ are extremely narrow or deformed.

MOVABLE KIDNEY.

The conclusions presented at the end of an admirable paper by HARRIS in the *Journal of the American Medical Association* of June 1, 1901, on the subject of movable kidney, are that the essential cause lies in a particular body form; that the chief characteristics of this form are a marked contraction of the lower end of the middle zone of the body with a diminution in the capacity of this part of the body cavity; that this diminution depresses the kidney so that the constricted outlet of the zone comes above the center of the organ, and all acts, such as coughing, straining, lifting, flexions of the body, etc., which tend to adduct the lower ribs, press on the upper pole of the kidney and crowd it still further downward; that it is the long-continued repetition, in a suitable body form, of these influences, which collectively may be called internal traumata, that gradually produces a movable kidney; and that a distinctly movable kidney is never the immediate result of a single injury or external trauma.

THE VALUE OF GARGLING.

BRESGEN (quoted in the *St. Paul Medical Journal,* June, 1901) lays particular stress upon three points in gargling: the quantity taken into the mouth, the temperature of the fluid, and the nature of the fluid.

His experience is that only a small quantity should be taken at once, the patient being taught to keep on trying until this small amount is allowed to flow downward into the pharynx back of the soft palate. Very cold or hot solutions irritate the mucous membrane, and prevent efficient gargling. This last effect is also produced by astringent gargles. The best gargle is a small quantity of a mild demulcent fluid at about the temperature of the room.

The writer does not look upon gargles as curative agents, but merely as aids, and only in recent and acute cases. The simultaneous and continued action of all the muscles of deglutition will often assist in the removal of thick and tenacious mucus.

Deep gargling will often overcome the hypersensitive condition of the pharyngeal mucosa which results in gagging and coughing whenever an attempt at examination is made. In many cases where persistent attempts at deep gargling are carried out the patient can submit to manipulations about the throat which were utterly impossible before.

PSEUDARTHROSIS OF THE TERMINAL PHALANGES.

MÜLLER (*Centralblatt für Chirurgie,* No. 9, 1901) exhibits some excellent actinograms of false joints following trauma of the terminal phalanges. The trauma was always severe, and the fractures apparently healed. The patients, however, complained of pain and disability. On a careful examination, preternatural mobility was exhibited. The diagnosis was established by the *x*-ray. In the three cases reported the cause of the failure to unite was found to be interposition of the soft parts. Under local anesthesia the bone ends were freshened and put in proper apposition, when union took place promptly.

A METHOD OF UNITING THE TWO RECTI MUSCLES.

HAMMESFAHR (*Centralblatt für Chirurgie,* No. 10, 1901), noting that when a hernia occurs after abdominal section in the median line the two recti muscles are, by means of abdominal pressure and contraction of the muscles forming the lateral parietes, turned out like the two wings of a door, produces what he believes to be a radical cure, by again bringing the recti muscles together. This is accomplished by free dissection of the muscles from their investing fascia, both anteriorly and posteriorly. Silver-wire sutures are then passed, including the inner two-thirds of each muscle, and about half its thickness. When these are twisted the muscles lie snugly together, the inner thirds of each muscle being pressed backward by the sutures which lie in front of them, and are so firmly fixed by the wire that their separation is practically impossible. These sutures are passed by means of partly blunted needles.

HEMOPHILIA AND NOSEBLEED YIELDING TO THYROID TREATMENT.

SCHEFFLER (*Archives de Médecine et de Pharmacie Militaires,* March, 1901) reports the case of a 22-year-old soldier, of good family history, who without obvious cause was attacked by purpura and obstinate nasal hemorrhages. This hemophilic condition was absolutely unaffected by ordinary therapeutic agents, and the epistaxis became so persistent and exhausting that permanent blocking of the nasal fossa was necessary. Treatment by thyroid extract exerted an immediate and beneficial effect, and was followed by cure. In three days the violent and persistent epistaxis had practically stopped. In six days, about eight grains of thyroid extract having been given daily, the purpuric eruption ceased and the old spots began to disappear.

OVARIAN INSUFFICIENCY.

JAYLE (*Der Frauenarzt,* Feb. 15, 1901) believes that ovarian insufficiency can be successfully treated by a number of therapeutic agencies, and calls attention to the well known theory that under normal circumstances the ovaries secrete a substance which exerts a powerful influence on the sympathetic system. Under normal conditions this secretion is especially abundant at the period of menstruation, acting upon the vasodilators of the uterus, and causing some of the phenomena of menstruation. When this ovarian secretion is scanty certain disturbances are caused, such as irregularity in the periods, and reflex nervous phenomena. The purpose of the therapeutist should then be to reestablish the regularity of this secretion. When the absence or scantiness of the secretion is of congenital origin, the patient manifests an incomplete sexual development associated with more or less abnormality of the vascular system. Under these circumstances the aim of treatment should be to encourage general nutrition by means of dietetic treatment, hydrotherapy, gymnastics, electricity, etc., and to aid in the secretion of the ovarian substance either directly by means of opotherapy or indirectly by emmenagogues or marriage. Surgical treatment is, in such cases, absolutely contraindicated.

When deficiency of the ovarian secretion

is dependent upon acquired conditions, provided pathological alterations be but slight in degree, opotherapy is strongly indicated. When the pathological alterations are extensive, the resultant disturbances incident to scanty or entirely deficient secretion may be such as to make life quite unbearable, and here surgical procedures may be indicated, though conservative treatment should first be tried. Sometimes the disturbance in the regularity and periodicity of the ovarian secretion is incident to uterine lesions. Under such circumstances the uterus itself must of course receive proper treatment.

By opotherapy the author means the administration of ovarin in tablet form, administered as a rule twice a day. He mentions a few cases in which the results were wholly satisfactory.

TREATMENT OF THE FRACTURED PATELLA.

WIENER *(Centralblatt für Chirurgie,* No. 1, 1901), when a patient with a recently fractured patella is brought to him, shaves and prepares the leg as for a surgical operation. He then envelops it with a layer of cotton of moderate thickness, excepting about the knee-joint, which is well padded. The extremity is then placed upon a plastic wood-fiber splint, and about the knee-joint are passed figure-of-eight turns, with a three-inch gum elastic bandage, which is so applied as to make a moderate pressure. This is removed in from four to five days, and applied a little more firmly. Immediately after the first dressing the patient is allowed to go about in a wheel-apparatus for a week. The results are said to be extremely satisfactory.

OPERATIVE TREATMENT OF DILATATION OF THE STOMACH INCIDENT TO SPASM OF THE PYLORUS AND HYPERACIDITY.

NEUMANN *(Deutsche Medicinische Wochenschrift,* No. 2, 1901) advises jejunostomy as the simplest, safest, and best means of treating gastric dilatation incident to spasm of the pylorus associated with hyperacidity. The stomach is put completely at rest, nor does this simple operation in any way interfere with subsequent more adequate surgical treatment.

TREATMENT OF FREEZING.

RITTER (quoted in *Centralblatt für die Gesammte Therapie,* March, 1901) has treated a number of cases of freezing, and a number of extensive and obstinate ulcerations following freezing, by means of a hot-air apparatus. He notes that the swelling rapidly disappears, as do the pain, burning, and itching, and that the vesicles desiccate promptly. After a single hot-air bath, power of movement returns to the frozen part. The treatment was employed daily for from one-quarter to one-half hour, and usually accomplished complete cure in from six to twenty days. This treatment is contraindicated only when the local inflammatory reaction is extremely severe.

TREATMENT OF ABSCESS OF THE LUNG.

BELL describes in the *Montreal Medical Journal* for May, 1901, some points of interest in three cases of abscess of the lung.

The abscess in each case followed a pneumonia, and judging from the symptoms, probably began as a local gangrene of lung tissue. The abscess communicated with the bronchi, with the result that evacuations of horribly smelling pus, at first more or less intermittent, occurred, and continued until the cavity was drained. In each case there was considerable difficulty about the anesthetic, and in one case general anesthesia was impossible on account of the filling of the bronchi with pus, which interfered with the breathing, and produced violent spasms of coughing. In this case the attempt to administer ether, which was only maintained for a few minutes, kept the patient in a condition of semiasphyxia and violent coughing for most of the afternoon. In each case the lung was firmly adherent to the chest wall, making the operation almost as simple as that for empyema, and finally the results of draining the cavities were most satisfactory. Localization of the abscesses alone was difficult, the aspirating needle failing to give evidence of pus even when it had undoubtedly entered the cavity. This is easily understood when it is considered that such a cavity is necessarily at times more or less completely emptied by a fit of coughing, and that its contents are moreover thick and viscid, containing generally much mucus and some shreddy material, especially if the case is a comparatively recent one.

TREATMENT OF INTESTINAL OBSTRUCTION BY ATROPINE.

SIMON *(Münchener Medicinische Wochenschrift,* March 19, 1901), encouraged thereto by the excellent results previously reported, has successfully treated a case of intestinal occlusion by large doses of atropine. The occlusion followed puerperal infection. The patient was first seized by violent diarrhea and vomiting. This was followed by a chill and fever, the pulse running about 140. There was severe abdominal pain. The abdomen was distended, and exquisitely sensitive. An ice-bag was applied to the stomach, and tincture of opium was given. Local douching was also employed. The vomiting became steadily worse, so that everything was rejected. Nothing was passed by the bowel. The patient was sleepless, and an injection of atropine 0.001 was given. This was followed by a comfortable night and very little vomiting. The following day three atropine injections of the same strength were administered. The pulse dropped to 120, and the general condition was slightly improved. There was some mydriasis. The throat was very dry, and there was no vomiting. The following day the stomach was washed out, the tube evacuating fecal material. Repeated enemata were without effect. The patient's sufferings becoming more marked, 0.002 atropine was injected with marked effect. Six hours later the injection was repeated, and was followed in about two hours by delirium, succeeded by loss of consciousness for about three hours, after which there was a passage from the bowel. Thereafter the patient's convalescence was uninterrupted.

In the same journal HÖCHTLEN also reports a case. The patient was seventy-one years old, and was brought into the hospital because of vomiting and abdominal pain. The abdomen was greatly distended, but was not tender nor hard. Castor oil produced slight vomiting at first, but later it was inoperative. The pulse became weak, running to 136. The vomiting became peritoneal in type and fecal. The pain becoming extremely severe, 0.003 atropine was given subcutaneously. It apparently had no other effect than to make the patient restless and quite delirious. This restlessness lasted for about five hours, and was then followed by a disturbed sleep. The following day the patient had not improved, and there was no movement from the bowel, nor could this be accomplished by an enema. In the evening the pain became so severe that an injection of 0.01 morphine was required. This procured a fairly restful night. The patient continued for two more days to suffer from pain, and fecal vomiting, and then died. The pain was kept under control by morphine; and atropine not only failed to open the bowels, but did not even relieve the pain, it already having given toxic symptoms, in this respect resembling a case reported by Lüttgen. In this latter instance, however, twelve hours after a dose of 0.005 the bowels were opened. Autopsy showed in Höchtlen's case an enormous dilatation of the transverse colon, due to a narrowing incident to an old peritonitis. This narrowing occurred in several places, a condition which could not possibly have been relieved except by section. Höchtlen says that even though atropine failed in this case, and necessarily must have failed from the conditions found, none the less it should be used when obstruction from peritoneal adhesions is suspected.

Intoxication sometimes must, however, be looked for when it is given in doses of 0.003, and not much can be expected from smaller doses. This has been demonstrated by Dietrich's experience; he gave 0.001, then 0.0015, without effect, succeeding only when 0.003 was given.

LEUCOCYTOSIS AND TYPHOIDAL PERFORATION.

RUSSEL *(Montreal Medical Journal,* May, 1901) gives the result of his study of the subject of leucocytosis in typhoid fever and its diagnostic importance in impending or actual perforation. That one may obtain marked variation in the leucocyte count in typhoid fever Russel says is well known. Dr. Cabot has shown that, even where no complications are evident, there may be obtained an average of over 15,000 white cells to the cmm. Further, that where certain abdominal complications, other than perforation, exist, the leucocytosis may rise to a very marked degree. Moreover, in the case cited by him of capillary bronchitis complicating pneumonia, the white cells numbered 9000 to the cmm.

In a number of complicated cases of typhoid examined by Russel, the same re-

sults could be determined in one patient in whom the only discernible complication was a simple bronchitis; there were 20,000 leucocytes to the cmm. In a case of cholecystitis, 13,000; in one of mild middle-ear disease, 13,000; and in a case complicated by general sepsis the white cells, as was to be expected, showed a similar increase, namely, 13,000.

The cases cited by the author in his paper lead in the main to these conclusions: That in perforation it is the rule generally to have a leucocytosis, but that the degree may vary within wide limits; that the leucocytes, while appearing as a rule early, may not be at all marked until the general peritonitis and collapse have supervened; that there may be an utter absence of leucocytosis with marked perforation and peritonitis—in fact, that the white cells may be lower than the normal; that with typical signs of perforation and a definite leucocytosis there may be no such complication present, and an operation may be performed unnecessarily; that a marked degree of leucocytosis may occur in complications other than perforation—for example, bronchitis, cholecystitis, etc.; that with pain and tenderness in the abdomen, coming on suddenly during an attack of typhoid fever (and in the absence of evidences of cholecystitis, or other definite complication), and a distinct leucocytosis, even without other signs of perforation, an exploratory operation is justified, even advisable, thereby obviating the dangers of a fatal issue from too great delay. Exploratory operation in cases where it has been found to have been unnecessary has resulted in no evil consequences, and the patients made a satisfactory recovery.

THERAPEUTIC NOTES ON SULPHUR CREAM, GOOSE GREASE, AND CRUDE PETROLEUM.

A sulphur ointment for the treatment of dandruff has been employed by JACKSON *(Journal of Cutaneous and Genito-Urinary Diseases,* June, 1901) with pleasure and profit. The formula is as follows:

White wax, 3 iijss;
Oleum petrolati, 3 ijss;
Rose water, 3 j;
Biborate of soda, gr. xv;
Sulphur, precipitated, 3 iijss.

It is a smooth, white preparation without any odor. It keeps perfectly, does not separate, and is as perfect as an ointment can be. It does not make the hair too greasy when properly applied, and it checks the dandruff.

Goose grease as an excipient has proved very satisfactory. Jackson's experience with it has been in the treatment of ringworm. For this purpose he takes from one-half to a drachm of the crystals of iodine rubbed up in an ounce of goose grease. This ointment is thoroughly worked into the patches with a stencil or stiff paint-brush. Its action in curing ringworm of the beard has been especially brilliant. Under the microscope hairs show staining with the iodine down to the bottom of their roots. On the scalp of a child it does not seem to be very irritating, and the patches get well.

As for the wonderful tales of the hair-growing powers of crude petroleum, Jackson's experiments in about thirty cases gave nothing but failure. He uses it now only for the destruction of lice.

A MODIFICATION OF COCK'S METHOD OF PERFORMING EXTERNAL URETHROTOMY WITHOUT A GUIDE.

The difficulty in discovering the urethral canal posterior to its point of stricture or division makes external perineal urethrotomy without a guide in the urethra very often tedious and difficult. Several plans are available: (1) Retrocathetherization, which in general should be held as a reserve; (2) the Wheelhouse operation, which is of limited application; (3) the Cock operation, which has about the widest field of application.

In the Cock operation the ease with which the prostate can be exposed through transverse incisions of the perineum has led BOLTON *(Journal of Cutaneous and Genito-Urinary Diseases,* June, 1901) to propose a method for the performance of external urethrotomy without a guide whose principles are the same as those underlying the Cock operation, but whose details differ materially.

The patient may be placed in the lithotomy or knee-chest position. A curvilinear transverse incision is made across the perineum, the convexity looking forward and the tendinous center of the perineum exposed. The attachment of the sphincter ani to this point is divided and reflected, and the triangular

ligament thus exposed incised transversely. The anterior fibers of the levator ani passing beneath the prostate to the rectum now come into view. These together with the rectum are next pushed backward and the prostate exposed.

The exposed surface of the prostate is now cleaned and its apex identified. No harm can accrue from incision into the floor of the prostatic urethra anterior to the verumontanum, and incision made into this part of the prostate is sure to enter the urethra behind its point of stricture. The anterior quarter-inch of the apex of the prostate is accordingly incised longitudinally in the median line, the urethra opened, and the incision then prolonged forward as far as desired, guided, if necessary, by a probe or director suitably bent and introduced into the urethra from behind forward. This method, while a little more elaborate than the original Cock operation, appears to Bolton to be rational and not necessarily difficult. Its greatest usefulness may be found in recent ruptures of the urethra and in strictures uncomplicated by extravasation of urine, or perineal abscesses.

The surgeon should hesitate to make use of it in the presence of infectious inflammations or necrosis of the perineal tissues, because of the larger wound surfaces unavoidably exposed to infection, and the risk of carrying infection to the cellular tissue between the rectum and bladder above the triangular ligaments.

A CONTRIBUTION TO THE STUDY OF THE PROSTATE GLAND.

WALKER has found, according to the *Johns Hopkins Hospital Bulletin* for October, 1900 (*Journal of Cutaneous and Genito-Urinary Diseases,* June, 1901), as a result of a series of experiments on dogs to throw some light on the prostate as a glandular organ, that in the testicle proper there was no movement of the spermatozoa; that in the globus major there was no motility; that in the globus minor slight movement of a few organisms could be noticed, where the fluid was thin; that in the vas deferens there was slight motion in the portion where the liquid was thin—in the thick parts, which composed the largest bulk, there was no movement; that in a mixture of prostatic juice and semen from the substance of the testicle there was distinct but not lively motion; that semen out of the epididymis with prostatic juice showed lively motility, continuing unabated for some time; and that semen from the epididymis with normal salt solution gave lively movement in the places where a mixture had occurred. In other areas where the liquid was thick no motility was apparent. The same was also true of the prostatic mixture.

The production of the immediate movement is explained by a thinning of the fluid, and not by a distinct stimulating influence of the prostatic juice. For the continued motility more is necessary than the mere thinning of the fluid, as in the salt solution all movement ceases after three hours, whereas in the prostatic juice it continues over twenty hours.

Walker has come to the conclusion that the immediate production of motility of the organisms is induced by a thinning of the testicular secretion with the prostatic juice. The continued movement is probably kept up by substances in the prostatic fluid, that either act as stimulants or as food for the organisms. Unless a homogeneous mixture is made, thick portions remain, where there is no movement. It therefore follows that as the dog has no seminal vesicles, and the gland of Cowper is very insignificant, the function of furnishing a fluid in which the spermatozoa can freely move belongs entirely to the prostate gland. It then becomes apparent that this organ is almost as important as the testes themselves.

The two fluids are mixed together by the beautiful anatomical arrangement of the ejaculatory and prostatic ducts about the crest of the caput gallinaceum. The ejaculatory ducts empty on the crest of the caput and the prostate by from thirty to forty openings in the urethral wall. The prostatic ducts all converge toward the caput, and are so directed as to eject their secretion toward the openings of the ejaculatory ducts. Thus as the semen is being poured out, thirty to forty streams of prostatic fluid are injected into it, both fluids becoming thoroughly mixed together.

The semen is thus ejaculated forcibly into the urethra in the direction of the membranous part. It does not pass backward into the bladder, because the manner by which it is ejaculated gives it a forward impulse; secondly, because the neck of the viscus is

closed by its own sphincter; and thirdly, because the anterior part of the urethra dilates and draws the fluid forward.

The verumontanum does not prevent the entrance of semen into the bladder. The semen is prevented from passing backward into the bladder by the contraction of the so-called sphincter of Heule. The prostatic ducts are so arranged that they eject their fluid directly into the outpouring testicular secretion. The longitudinal fibers of the sphincter membranaceæ urethræ dilate the outer half of the membranous and a part of the bulbous urethra, and by this means draw the semen from the prostatic portion. During the last act of ejaculation the orifices of the prostatic and ejaculatory ducts are closed, and their respective fluids put on much tension; so that at the moment of relaxation a sufficient quantity of semen is poured in for the next emission. The sphincter membranaceæ urethræ aids not only in carrying the semen along the urethra, but helps very materially in expelling it.

TREATMENT OF ACUTE GONORRHEA BY HOT SALINE INJECTIONS.

The value of medicated injections in the treatment of acute gonorrhea is a mooted point, many practitioners holding, not without reason, that they often do more harm than good. When carried out by the patient himself this is very probably the case. A novel suggestion in this relation is to practice injections of saline solution as hot as can be borne every two or three hours, and even, if possible, every hour. Under this treatment there is, says Dr. Woodruff, no necessity to administer any remedy by the mouth, and he states that the average duration of the disease in a number of soldiers thus treated was ten or twelve days.—*Medical Press,* April 10, 1901.

POTT'S DISEASE WITH PARAPLEGIA.

Gibney in 295 cases of Pott's disease, according to MURPHY *(Clinical Review,* June, 1901), found paralysis in 62, a very large percentage. Paralysis occurs much more frequently when the disease is situated in the cervical and upper dorsal regions than when it is situated in the lower dorsal or lumbar regions. In the upper dorsal region, in 189 cases, there were 59 patients with paralysis. In the lower dorsal and lumbar regions, in 106 cases, there were 3 cases of paralysis. Victor Horsley has completely shown that the paralysis is not the result of the deformity at all. In a case described by Murphy, contrary to the usual course taken by granulomata or tuberculosis of the body, the granuloma had perforated the posterior wall of the vertebral body and compressed the cord, resulting in paraplegia.

In the pathology of this disease, when the tubercular abscess ruptures in front, on the anterior surface of the body of the vertebra, it protrudes into the chest cavity, giving what is known as the thoracic abscess; in the neck it protrudes beneath the posterior pharyngeal wall, giving us the postpharyngeal abscess; lower down in the spine it ruptures on to the psoas muscle and burrows along its surface, even into Scarpa's triangle, giving us what is known as psoas abscess. These positions of the abscess are due to the fact that the tubercular process, always beginning within the vertebral body, perforated on the anterior surface to produce them. Unfortunately for the patient it does not always perforate the anterior surface of the vertebral body. It occasionally perforates the posterior bony wall of the body into the spinal canal, elevates the periosteum or lining of the bone, and appears as a pale white tumor in the spinal canal on its anterior surface. The granuloma increases in size as the tubercular destruction goes on, its caseous products and its tubercular débris increase the pressure with which it encroaches upon the cord, until we have, first, manifestations of disturbance of sensation, motion, and coordination; and so as the granuloma increases in size we have finally complete cessation of transmission of sensation and motion through that portion of the cord.

The case reported by Murphy was of that particular type of paraplegia. The location of the granuloma was determined by the girdle of changed sensation and the deformity, and it was decided to operate for the removal of the pressure. A laminectomy was therefore performed in the usual way by the H-incision. Two of the spinous processes were freed with the chisel, one displaced upward, the other downward. The cord appeared to be sharply curved forward. A tumor could be felt anterior to the cord,

which seemed to be an osseous growth. Without dividing the costal nerve, Murphy elevated the cord and found a white, glistening tumor protruding from the posterior surface of the body of the vertebra near the center. It was incised, and with a sharp curette half a drachm of cheesy material and bone fragments was removed from the body of the vertebra. The next one above was passed to, and being found involved in the disease, the cord was elevated and pressed to the left. The first one was to the left side of the cord, the second on the right and above, so that the compression came from the left and from the right, the cord having to make a turn sharply at that point, which hastened the disturbance of function of the cord. With a scalpel the periosteum of the body of the vertebra was divided, and quite a quantity of cheesy material removed. When the parts were thoroughly cleansed the cavities were packed with pure iodoform crystals. In removing the upper part, Murphy tore the dura at its attachment to the root of a costal nerve. This was closed with a fine catgut suture so as to completely prevent the escape of spinal fluid. The spinal cord was allowed to fall back into its trough, the sharp processes of the bone were removed, and the spinous processes replaced. The wound closed without drainage.

The case reported is the fourth of the class operated upon by Murphy. The first recovered, the second only partly recovered motion, but there was complete recovery of sensation. In the third case sensation and motion had both been destroyed for a long time, and the granuloma had no effect at all upon the paralysis, as the cord had degenerated beyond the possibility of repair. This emphasizes the fact that if the operation is to be effectual it must be performed early, before the paralysis is complete and before degeneration takes place. It is not a dangerous operation. It is easy of execution; it has a very good pathological basis for its demands; and in many instances the pressure on the cord can be immediately and permanently relieved by it.

RAPID HEALING OF FISSURE OF THE ANUS.

The *Clinical Review* for June, 1901, says that to obtain rapid healing of fissure of the anus, the bowels must first be put into a soluble condition and maintained so until the treatment has been completed by the cure. Then, the fissure being cocainized, at least for the first treatment, pure ichthyol is applied to the part with cotton wound on a glass rod. Applications made every second day will soon effect a cure.

TURPENTINE INJECTIONS IN SEPTIC INFECTIONS.

Hypodermic injections of turpentine are reported to have cured several cases of septic infection. FOCHIER, said in the *Medical Standard* for June, 1901, which quotes Telburg-Hofman on the subject, to be the first advocate of the treatment, found that the production of a local suppuration with the turpentine reduced the general infection.

The injections are made into the thigh, and the pain, which appears sooner than in morphine injections, is very little when the hypodermic needle is well introduced in a cushion of adipose tissue, though in some cases it may be necessary to administer an anodyne. If the injection is made deeper, other signs, as redness of the skin, may appear on the third day or later.

Fochier seldom made more than two injections of from 15 to 25 minims in one case, while Thierry not only injected every other day, but kept the suppuration up by irritation of the wound.

RETROJECTION OF BILE INTO THE PANCREAS A CAUSE OF ACUTE PANCREATITIS.

The sudden and complete interruption of the flow of bile during digestion, according to HALSTED (*Johns Hopkins Hospital Bulletin*, April and May, 1901), if due to a calculus, may give rise to a retrojection spurt of considerable volume and velocity. But whether this force be considerable or not, since the pancreatic juice and the bile are secreted at almost the same quite low pressure, it would probably be sufficient to drive the bile into the pancreatic duct under the proper conditions. A patient probably suffering from such a condition of affairs was operated upon by Halsted; but the operation was performed for gall-stone. The patient lived afterward for about twenty-three hours. As it turned out, however, there could have been no hope for the

patient without operation, as the conditions responsible for the lesions would have persisted.

Too much care, Halsted remarks, cannot be given to distinguishing gall-stone attacks *per se* from those attended with pancreatic complications. To search for and remove the stone in the diverticulum as soon as possible after the appearance of the first symptom would be the correct procedure in some cases if the true nature of the attack could be recognized early enough.

Operation should not be undertaken on cases in collapse, but the bloody fluid, probably highly toxic, may be hastily evacuated by laparotomy (local anesthesia) in cases too ill for radical operation.

Of twenty-five cases of hemorrhagic pancreatitis operated upon, only two have recovered: one a case reported by Halsted eleven years ago, and the other a case reported by Hahn.

USE OF ATROPINE BEFORE ETHER ANESTHESIA.

BRAUN (*Centralblatt für Chirurgie*, No. 17, 1901) says that the hypodermic injection of atropine previous to the beginning of anesthesia has been recommended as a means of preventing the, at times, great excretion of mucus and saliva from the respiratory organs and mouth. The author has given ether in many cases, and has yet to see the case in which atropine had seemed necessary. It is to be remembered that atropine is not a perfectly harmless medicine—in fact, the author has seen a marked case of poisoning result from a small hypodermic injection given in the treatment of a case of intestinal obstruction. In conclusion the author says that with careful administering of the anesthetic the use of atropine seems absolutely unnecessary.

VALUE OF THE ALUMINUM-BRONZE WIRE THREAD IN SURGERY.

PICHLER (*Centralblatt für Chirurgie*, No. 16, 1901) reports the results of a series of experiments made with a wire thread containing eighty-five per cent of copper, five per cent of aluminum, and ten per cent of tin. Agar-agar cultures of the staphylococcus aureus and albus, streptococcus pyogenes, micrococcus tetragenus, bacterium coli communis, and the bacillus of rabbit septicemia were the bacteria employed. Wires made of the following metals were used: silver, copper, aluminum, aluminum-bronze, brass, iron, magnesia and magnolia metal. These experiments showed that around the silver and the aluminum-bronze wires were areas uniformly free from bacteria, while along some parts of the wires there would be a small growth, but markedly less than with the wires made of other metals. The staphylococcus albus and the micrococcus tetragenus seemed to be the bacteria most affected by these two metals, but with the bacillus of rabbit septicemia and with the bacillus coli communis the experiments were absolutely successful. The author states that in his clinic he now uses the aluminum-bronze wire thread in preference to silver wire thread, especially when it seems likely that there will be an infection along the suture from the skin, as in the scrotal or inguinal regions, and the lips, or where there is much tension and the stitches will have to remain *in situ* for some time.

UNILATERAL EXCLUSION IN OBSTINATE INTESTINAL FISTULA.

DELORE and PATEL (*Rev. de Chir.*, March 10, 1901), after reviewing this subject in detail, state in conclusion: (1) The operation of unilateral exclusion should be placed in the category of intestinal operations which, without directly attacking the lesion, promote its cure by placing the affected parts at rest—an operation practically without danger and often very efficacious. (2) Applied to the cure of intestinal fistula the results vary, depending on whether the lesion is in the small or the large intestine: *(a)* In the small intestine it has practically the same result as entero-anastomosis—that is to say, the material accumulates in the lower segment and the fistula persists; *(b)* in the large intestine the results are definite and often curative. If the fistula is at the level of the iliocæcal valve, with involvement of the cæcum, the ileum should be inosculated in the sigmoid flexure of the colon; in those cases in which the cæcum is not involved the inosculation of the ileum in the ascending colon should be sufficient. (3) The suppression of the circulation of the fecal material is definite, as in bilateral exclusion;

the suppurating fistulæ have less opportunity for increase in size than if bilateral exclusion be performed, and the chances of a general infection from this source are slight. (4) Unilateral exclusion may be employed in the treatment of non-fistulous cæcal tuberculosis not only as a curative measure, but also to prevent the formation of a fecal fistula.

ABSORBABLE BUTTON OF MAGNESIA FOR INTESTINAL ANASTOMOSIS.

CHLUMSKY (*Centralblatt für Chirurgie*, No. 15, 1901) says that he has had good results with a button made of pure magnesium, of the same form as the Murphy button, except that it contains no spiral spring. Experiments made on dogs show that the button was nearly all absorbed by the eighth or tenth day, and that in from sixteen to twenty days it had entirely disappeared. In order to hasten the absorption of the button, in cases of gastroenterostomy, the author advises giving the patient a weak salt solution internally. The author reports cases in which he has used this button with success, and says that he believes his absorbable button to be an improvement on the Murphy button, because it does not remain and act like a foreign body after its period of usefulness is finished.

TORSION OF HYDROSALPINX.

CATHELNI (*Rev. de Chir.*, March 10, 1901), after reviewing this subject in great detail, states in conclusion: (1) Torsion of a hydrosalpinx is only a particular case of the general law of torsion of organs and abdominal tumors. (2) It is usually observed between the ages of thirty and forty years. Pregnancy seems in some cases to be a predisposing cause. (3) The right is the side more often affected, in the proportion of two to one. The tumor is usually lateral, and on the side of the torsion it has been observed in the anterior cul-de-sac, posterior cul-de-sac, and even in rare cases on the opposite side to that of the torsion. The cyst is always developed at the expense of the external part of the Fallopian tube (fimbriated extremity). The size is about that of an orange, oval, and smooth or lobulated, and usually black in color. The pedicle includes the normal elements of the broad ligament, often twisted near the cornu of the uterus and often more or less gangrenous; complete rupture is rare. The average number of torsions is between one and two, and the rotation is equal between antetorsion and retrotorsion. The average amount of contents is about 400 grammes of blood, rarely pus or clots. In one-third of the cases the corresponding ovary is twisted. Peripheral adhesions are always secondary. A hydrosalpinx is usually present on the opposite side. The cyst wall, usually thin, is the site of interstitial hematomata, of parietal apoplexy. The pedicle presents a general hyperplasia and a thrombosis of the vessels, beginning in the veins and often extending to the arteries; the smaller arteries remain permeable. The ovary presents medullary hemorrhagic lesions following the vessels and cortical lesions of diffuse and recent hemorrhage, parallel to the periphery. The Fallopian tube of the opposite side presents the lesions of chronic salpingitis with adhesions and thrombosis of its vessels. Bacteriologically, a micrococcus, slightly pathogenic, has been observed; as a rule secondary infection is due to the colon bacillus. (4) There are two forms of torsion, the quick or acute, and the slow or chronic, both preceded by prodromal symptoms, of which pain is the more prominent: *(a)* Acute torsion is characterized by horrible pain, very sharp, and often accompanied by syncope; vomiting, first of the stomach contents and then of bile; sometimes metrorrhagia; constipation; shock; and the signs of a localized aseptic peritonitis, and no fever. The abdomen is distended, and on palpation there can be made out an abdominal tumor, tender, fluctuating, mobile, and heavy. *(b)* Chronic torsion is characterized by paroxysmal crisis of dull pain, no syncope, etc. (5) The clinical prognosis is grave, but the operative prognosis is good. One should operate so as to avoid the secondary complications, of which the most common is pyosalpinx. (6) The differential diagnosis is difficult; when the crises of pain are not present the diagnosis must be made from all tumors that may be found below the level of the umbilicus, from amniotic dilatation of one of the horns of the uterus, and especially from ovarian cyst. During a crisis of pain the diagnosis is to be made from appendicitis that has gone on to perforation, rupture of a tubal pregnancy,

fibroma with twisted pedicle, pyosalpinx, ordinary salpingitis, and colic (renal and biliary). (7) Laparotomy and bilateral castration, with secondary hysteropexia, without drainage, is the operation that should be performed.

LIGATURE OF THE ABDOMINAL AORTA.

TILLAUX and RICHE *(Rev. de Chir.*, Jan., Feb., and March, 1901) state that as the result of physiological experiments on the lower animals (1) the ligature of the abdominal aorta is not of necessity fatal, except, perhaps, in the rabbit; (2) it is followed by anemia and more or less complete paralysis of the posterior tract; (3) the animals that survive the operation do not have gangrene nor persistent paraplegia; (4) these experiments were performed under complete asepsis in order to establish the real dangers of the operation and the causes of its different effect in different species.

From a pathological standpoint the authors conclude: (1) The effects of the obliteration of the aorta are very variable, depending on its cause and its extent. Congenitally it is not hurtful, but when of embolic origin in the course of either ulcerative endocarditis, erysipelas, pneumonia, or typhoid fever, there is a possibility of sudden death. (2) It has been observed that the paralytic trouble may be either intermittent lameness or even complete paraplegia. Gangrene may be a sequel. (3) In all cases in which there has been gangrene or persistent paralysis, the obliteration has not been limited to the aorta alone.

From a surgical standpoint the authors conclude: (1) The ligature of the abdominal aorta in man is never followed by gangrene; (2) the phenomenon of congestion of the vertex of the head is rare and without importance; (3) paraplegic phenomena are variable, inconstant, and transient; (4) there have been no cases in which death could be directly attributed to the operation. The ligature of the abdominal aorta is not in itself a fatal operation. A limited obliteration, performed aseptically on a healthy aorta, may cause transient disturbance of the circulation and more or less complete paraplegia, which soon passes off, but it is incapable of injuring the vitality of the legs. The ligature of the abdominal aorta has been performed for the relief of iliofemoral or aortic aneurism, and for hemorrhage; the authors know of no other indications for this operation. In the case of severe hemorrhage in the course of an abdominal operation it should not be used until all other means have been tried and failed. In cases of severe internal hemorrhage, where it is indicated, there is usually not time to have recourse to this method of treatment, which is rarely used for aortic aneurisms when the aneurism involves the abdominal aorta. In the case of iliofemoral aneurisms, it is often well to place a temporary ligature around the aorta and so make it possible to operate without danger on the aneurism itself, or on the common or external iliacs. It should be remembered that the ligature is not the method of election in the treatment of these aneurisms, and that the ligature when applied to a diseased aorta exposes the patient to the risk of secondary hemorrhage.

In conclusion it may be said that it is impossible to precisely state the indications for the operation of ligation of the aorta, but they are very few, and it is extremely rare that this operation is necessary. When this operation is necessary the surgeon should not hesitate to perform it. The more simple method is evidently by the transperitoneal route, or Cooper's operation, although Guthrie has proposed its performance extraperitoneally, a method not so easy or so good as Cooper's, and one that is never used at the present time.

ATROPINE TREATMENT OF INTESTINAL OBSTRUCTION.

BOFINGER *(Münchener Med. Woch.*, April 23, 1901) reports two cases of acute obstruction treated by this method.

The first patient was a male, aged fifty-two, who for the past year had suffered from loss of appetite and alternating attacks of diarrhea and constipation, with the passage of mucous-like material. This was followed by absolute constipation, with tympany, marked abdominal pain, and failure to pass even wind. Calomel was administered and followed by the hypodermic injection of .004 gramme of atropine sulphate. The patient's condition became steadily worse, pulse very weak, pain increased, and a marked swelling developed in the left iliac region. A high enema of olive oil was then given without success, so an exploratory laparotomy was decided on as a last resort.

On opening the abdomen, there was found a typical volvulus of the lowest part of the ileum; the large intestine and the rectum were rather injected, while the upper intestine and stomach were strongly bleached. The intestinal mucous membrane and peritoneum were red and injected. Much ascites was present, and further examination showed an annular carcinoma of the pylorus.

The second case was that of a woman, aged fifty-six, who gave a history of prolonged constipation, and for the last three days before she came under treatment there had been no movement of the bowels. She complained of colicky pains; there was a swelling the size of an apple in the right inguinal region, with marked meteorism. The entire abdomen was sensitive on examination, especially so in the left epigastrium. The constipation was absolute; for four days hypodermic injections of atropine were given, but with no success. The patient's condition becoming steadily worse, an exploratory laparotomy was performed. The general peritoneal cavity was full of flaky fluid, which was evacuated, the cavity was packed with gauze, and the patient returned to bed. During the succeeding night she was very delirious, got out of bed, and walked. Upon removing the dressing the next day, a piece of the intestine over three feet long was found protruding from the wound. The patient died without regaining consciousness.

The author states that the position taken by Lüttgen (*Münchener Med. Woch.*, No. 48, 1900), in which he states that atropine is indicated in all cases of acute intestinal obstruction, is in his opinion a most dangerous one. In cases of doubtful diagnosis, an exploratory laparotomy is a much safer method of treatment than atropine injections. In one case of this character, in which atropine was used, the autopsy showed that laparotomy would probably have saved the patient's life. Local sensitiveness to pressure is a very variable and uncertain symptom, but still it may be made much more so by the use of atropine, particularly in cases of incarcerated hernias where the absence of local pain on pressure may be very misleading to the surgeon. The author believes that atropine should only be used in those cases of incarcerated hernia in which, for some ulterior reason, operation is absolutely contraindicated.

EMPYEMA OF THE FRONTAL SINUS.

Suppurative sinusitis or empyema of the frontal sinus is a comparatively rare affection, although, all told, according to INGALS (*Journal of the American Medical Association*, July 27, 1901), many cases have been recorded. It is frequently an acute disease, characterized by pain over the frontal sinus, which continues persistently for several days, and is finally relieved by a discharge of pus from the nose; or the pain may come on daily, lasting for a few hours only. These acute cases frequently run a rapid course and terminate in resolution. Chronic empyema may be of the variety known as latent sinusitis, which, according to Mayo, Collier, and Milligan, is characterized by symptoms and signs similar to those of acute empyema, and yet is not very different from sinusitis of a simple non-suppurative catarrhal character.

The latent disease is essentially chronic; but on account of the free opening from the sinus into the nasal passages, there is no permanent collection of pus, and none of the external manifestations are observed that appear when the outlet from the sinus is obstructed.

The common characteristics of the more formidable affection attended by obstruction of the outlet are severe pain similar to that of the latent disease, more or less external deformity, such as swelling of the eyelids, tumor at the inner canthus or extending above the eyebrow, and external abscess or fistula.

Notwithstanding the most approved methods, in some instances the suppuration will drag along for years. In acute cases the treatment should consist of warm and soothing detergent and antiseptic sprays for cleansing the nares, with the free use of a watery extract of adrenal glands or of a solution of adrenalin several times a day, or the more guarded use of a small quantity of cocaine three or four times a day to keep down swelling and thus permit free drainage. In most cases it will not be necessary to wash out the frontal sinus. In latent chronic cases, detergent sprays or washes should be employed to keep the nares clean, and various mild antiseptic powders or sprays may be used advantageously three or four times daily. These measures, however, will generally prove inadequate to check the suppuration, and it will be necessary to fre-

quently wash out and disinfect the frontal sinus. To accomplish this, it is usually necessary to first remove the anterior end of the middle turbinated body in order to be able to introduce a cannula. Many of the solutions that have been employed for disinfecting and cleansing this cavity act well, but all will sometimes necessarily fail. A case may show the good effects of simple measures, and another may show the disheartening lack of results even with persistent treatment by the usual remedies, and sometimes may show the marvelous effects that may be obtained at times by the injection of a solution of from three to eight per cent of the preparation of silver known as protargol.

In chronic cases of suppuration of this sinus it is important to establish free drainage, and it is sometimes necessary to open the frontal sinus and remove diseased tissues. When the milder endonasal methods have failed, success has sometimes been attained by opening the sinus through the nares with a Palmer drill, or with Krause's antrum trocar. Under normal conditions it would be difficult with either of these instruments to enter the frontal sinus in safety, but when pus has been pent up in the cavity for a long time, the parts are sometimes so distended that it is comparatively easy to make the opening through the naris. If the Palmer drill is used the opening will necessarily close by granulation in two or three weeks; but if Krause's antrum trocar is used, it is practicable to introduce through it a drainage-tube. The best surgical procedure in such cases undoubtedly consists in making an external opening into the sinus, of large size, and then breaking down the floor of this cavity and establishing a free communication with the naris, which should be maintained by the aid of a large funnel-shaped drainage-tube. Even this method cannot always be relied on to effect speedy cure. The anatomic variations from a typical form sometimes render any of these operations unexpectedly difficult and dangerous. To facilitate endonasal operations it is often necessary to reduce hyperplasia, to remove polypi, and to open the anterior ethmoidal or fronto-ethmoidal cells with the cutting forceps or curette. In chronic cases, even when there is no retention, it should be remembered that there is constant danger while suppuration exists in the frontal sinus, as it may cause thrombosis of the cerebral sinuses, meningitis, cerebral abscess, or pyemia.

In any case, when there are marked ocular, orbital, or cerebral symptoms, an external operation should be made at once, and also in the more violent types of the disease which cause severe pain. When a radical operation becomes necessary, it is customary to shave off the eyebrow and make a central incision through this region down to the bone, pushing back the periosteum until sufficient space has been denuded. After the soft tissues have been removed, the bony wall may be opened by a trephine, chisel, or circular saw. Tilley's central vertical incision, advocated by Collier, is much in vogue at the present time. This cut is made in the middle line from the root of the nose, and extends two inches upward. Collier removes a button of bone by the trephine at the median line, thus exposing the mucosa of both sinuses. In this way he determines whether one or both are involved in the suppuration. Milligan prefers the unilateral operation. After the mucosa is exposed he makes a small opening in it and passes a probe into the sinus; if pus is found the mucous membrane is then cut away, the sinus opened widely, and if hyperplastic tissue or polypi are found, these are thoroughly removed by a curette. The deformity resulting from these external operations on the frontal sinus is chiefly due to the sinking-in of the soft parts. To avoid this, German operators, during the last few years, have opened the front wall of the sinus osteoplastically—that is, by creating a bony flap including the rim of the orbit. This flap is lifted upward so as to expose the sinus freely, and in addition the floor of the cavity is opened downward into the orbit so that all parts are freely exposed, permitting the removal of any diseased tissue that the sinus may contain. The bony flaps made in this way are reunited after a few days while there is still hope of primary union. Some operators have contented themselves with opening the floor of the sinus only, but this does not give free access to the cavity. Where, on account of the extent of the disease, a very radical operation is indicated, both the anterior wall and the floor of the sinus can be removed, leaving a bridge of bone at the orbital edge. This operation is

said to be followed by less deformity than that on the front wall alone, as the soft parts of the orbit help to fill up the space of the sinus cavity.

Having opened the frontal sinus above the orbit, the next step in the operation should be to establish free drainage into the nasal cavities. This may commonly be done with Krause's bent trocar, which is passed from above downward into the naris, where it is met by the little finger introduced as a guide into the nostril of the affected side. This opening should be of ample size to allow the introduction of a large-sized, funnel-shaped drainage-tube, like that of Luc, or a modification, having a flange on the lower end to prevent it from creeping up into the sinus. In most cases this drainage-tube will have to be kept in place for weeks or months, and, as has happened, it is likely to creep upward into the frontal sinus, notwithstanding the flange. It is best to leave a small opening externally that may be kept patent by a rubber flanged at both ends, like those recommended for drainage of the antrum of Highmore. It is recommended that the external opening be closed at once, but patients will be unable to cleanse the frontal sinus from the nose; for this reason Ingals thinks that a small external opening should be maintained in the majority of cases until suppuration ceases. It is often impossible to be sure whether the pus escaping into the nose comes altogether from the frontal sinus or from the ethmoidal or fronto-ethmoidal cells, consequently it is sometimes desirable to break down these cells, together with the floor of the sinus, by means of a gouge, in order to make very frequent drainage. Even then granulations are likely to spring up that will soon close the opening; therefore, according to Ingals, a large, funnel-shaped drainage-tube should be introduced. In not a few cases the chief difficulty has been found in preventing the ethmoidal suppuration and in maintaining a free outlet into the nose. To overcome this difficulty, Barth, Winckler, and Killian recommend a temporary osteoplastic resection of the nasal process of the superior maxillary, and of the nasal bone. This procedure is carried out, after the frontal wall of the sinus has been opened, by severing the nasal bone entirely from its fellow in the center, and extending the cut upward to the opening into the front of the sinus, then turning the flap outward like a door. Free access is thus gained to the nasal cavity and the floor of the sinus, which is totally removed; and the suppurating ethmoidal and fronto-ethmoidal cells, and all cavities clear back to the sphenoidal sinus, and even including this, are broken down and cleared out, if necessary. After all the diseased structures have been cleared away, the flap is reunited in its normal position, and although the operation has been very extensive, it is said that healing occurs without much more deformity than in the ordinary operation. This operation is indicated when there is extensive suppuration, and in cases where the milder operations fail to effect a cure. In any of these operations great care should be taken not to puncture the cerebral wall.

The after-treatment consists of irrigation by warm boric acid solutions, followed by protargol in solution of about five per cent, or as strong as can be used without causing undue pain. Among the instruments recommended for the operation are a small circular saw driven by a dental engine that enables one to follow the incision in the line desired without shattering the bone. It is especially useful in saving the rim of the orbit. Dental burrs or nasal trephines may also replace the gouge or curette with advantage in some cases, as they are much better under the control of the operator. Krause's bent trocar is an essential aid.

THE PREFERABLE METHOD OF URETERO-URETERAL ANASTOMOSIS.

Injuries to the ureters are so common in conjunction with pelvic and abdominal surgery that a familiarity with conservative methods of dealing with them is of great importance. This necessity is particularly noticeable, says BOVEE (*Journal of the American Medical Association,* July 27, 1901), when one reads discussions in which the foremost surgeons of the age report cases of nephrectomy for injuries of the ureter during abdominal operations and for ureterovaginal fistulæ. Bovee has recently noticed six cases of this kind reported in one discussion, all of which seemingly could have been successfully treated by ureteroplasty.

Uretero-ureteral anastomosis seems to be dreaded and misunderstood. There can be no question that when ureterocystostomy

and uretero-ureteral anastomosis are both practicable, the latter is the better, as it restores the duct to its natural state and does not endanger a faulty vesicoureteral junction.

Experiments on the very small ureter of the dog have caused an unwarranted fear of urinary leakage and local injurious contraction. A sufficient number of operations have been reported, however, to show that these points of danger have been exaggerated.

But two cases of urinary leakage have been mentioned, and in these it has not interfered with satisfactory results. In but one case has any subsequent narrowing been noted, and in this the narrowing may be attributed to tuberculosis, which caused the fatal result.

The operation has been done by four different methods—end-to-end, end-in-side, end-in-end, and lateral, or side-to-side. These have been modified by different surgeons. The end-in-side, known as the lateral implantation of Van Hook, has been done a sufficient number of times to prove beyond doubt its success. The end-in-end plan has been followed twelve times, with two deaths, neither of which was attributable to the operation. Bovee reports his case as follows:

E. R., white, thirty-two years of age, widow, though married fifteen years, IV-para, was admitted to hospital, complaining of pelvic pain and an occasional irregular bloody vaginal discharge that had existed eighteen months, but had recently been much exaggerated, though she was in constant care of a quack doctor. The day after admission curettage and cauterization with chloride of zinc was done, and in about eleven days radical operation for cancer of the uterus was done, removing nearly the whole of the vagina with the uterus, its ligaments, and appendages. The left ureter was in a mass of enlarged glands at the iliac bifurcation, and about one inch of it was resected. The upper end was invaginated into the lower by the method of Poggi, using three sutures of No. oo silk, which passed entirely through the lower end and the muscular and fibrous coats of the upper. These were doubly needled and served to pull the upper into the lower end after forcible dilatation of the latter. Over this, interrupted catgut sutures were applied. The duct was free for three inches below the point of suture, and at one point was sutured to the wall of the pelvis to prevent entanglement in the gauze packing, incident to the operation. She made a complete recovery without leakage, and is still in good health.

The end-to-end method has been done both by transverse and oblique anastomosis. The latter has been done but once on man, and that by Bovee five years ago. The patient is still free from any annoyance incident to the anastomosis. During the past year Kelly has reported a case, done by the transverse plan of this method, that resulted successfully, and which makes a total of thirteen cases noted by Bovee. Two of the thirteen ended in death in twenty and forty-two days respectively, from conditions independent of this procedure.

The side-to-side anastomosis has probably not been done on man.

The ends of the severed ureter have been united in thirty-three cases with no evidence of ureteral incompetency as a result.

Bovee believes that the end-to-end or the end-in-end method is applicable to every case in which the end-in-side or side-to-side plans could be used. The reverse cannot be said. With improved technique they are as safely done, and in even less time. It would, therefore, seem that the ingenious plan of Van Hook would scarcely be needed, that the end-to-end plan is most applicable, and next to it the Poggi end-to-end. With these two latter methods the surgeon should be able to repair successfully any injury to the ureter, except of its very lowest part, involving a loss of its length not exceeding three inches.

AMPUTATION THROUGH THE HIP-JOINT BY WYETH'S METHOD.

In Wyeth's method of making an amputation through the hip-joint (*Journal of the American Medical Association*, May 18, 1901), the patient should be placed with the sacrum resting upon the corner of the operating table, the sound limbs and arms being wrapped with cotton-batting, and the body thoroughly protected from unnecessary loss of heat. The member to be removed should be emptied of blood by elevating the foot and by applying the Esmarch bandage, commenc-

ing at the toes. Before this bandage is removed the rubber tubing constrictor should be applied. This constriction accomplishes the perfect occlusion of every vessel above the level of the hip-joint, permitting the flaps to be made, disarticulation to be completed, and the vessels to be secured without hemorrhage, before the tourniquet is removed. To render the manipulation of the femur, in the process of disarticulation, free from the danger of the tourniquet slipping, Wyeth employs two strong steel needles or skewers, three-sixteenths of an inch in diameter and ten inches long. One of these is introduced one-fourth of an inch below the anterior superior spine of the ilium and slightly to the inner side of this prominence, and is made to traverse superficially, for about three inches, the muscles and fascia on the outer side of the hip, emerging on a level with the point of entrance. The point of the second needle, thrust through the skin and tendon of origin of the adductor longus muscle one-half inch below the femoroperineal commissure or crotch, emerges just below the tuber ischii. The points should be shielded at once with cork. A piece of strong white rubber tubing, half an inch in diameter, and long enough to go five or six times round the thigh, is placed over a mat of sterile gauze, two inches thick and four inches square, laid over the femoral artery and vein as they cross the brim of the pelvis. The tubing is now wound very tightly around and above the fixation needles, and then tied. The Esmarch bandage is next removed, when it will be found that the extremity is practically bloodless and will remain so.

In making the flaps, the surgeon should always be guided by the conditions within the field of operation. When done for osteomyelitis, where conditions will permit, the soft structures should be divided at the junction of the middle with the upper third. A perpendicular incision beginning above the trochanter and carried down to the bone along the outer aspect of the thigh and hip should join the transverse incision. With the elevator, the muscles should be lifted from the bone or divided with scissors or bistoury very close to the periosteum. When the capsule is reached this should be divided on its upper aspect, keeping the point of the bistoury always directed toward the center of the neck. The thigh should now be flexed on the abdomen, and after cutting across the capsule posteriorly, forcibly abducted and rotated until the ligamentum teres is ruptured, and the disarticulation completed. The leverage of the undivided femur is of invaluable aid in freeing the head of the bone from the socket. The vessels should now be tied with strong catgut.

In addition to the femoral arteries and veins, these vessels must be secured—the saphenous vein, the sciatic artery, the obturator, and the descending branches of the external circumflex, two or three in number.

At this stage it is wise to loosen slowly the grasp of the tourniquet until the pulsation of the larger trunks is perceptible, in order to be sure that none of the vessels have been overlooked. To prevent oozing, Wyeth introduces a wick of sterile gauze into the cavity of the acetabulum, packing this thoroughly in the space between the muscles from which the bone has been dissected, an end of the wick passing out between the flaps for its removal. In addition to this, with a long, half-curved Hagedorn needle, armed with good-sized catgut, deep sutures are then passed through the stumps of the divided muscles, taking three or four inches in the grasp of each suture. In this way large masses of muscle are brought snugly together when these sutures are tied.

To preclude probable oozing, before tightening the silkworm-gut sutures, Wyeth thoroughly dries out the flaps with sterile absorbent gauze, and while the constricting tourniquet is still in place, tightens the sutures and applies a light dressing of loose gauze that envelops the stump. Over this a gauze bandage is placed, sufficiently compressing to prevent the transudation of serum or the oozing of blood. More loose gauze is now laid over the stump, and is held there by firm compression by the hands of the assistant while the tourniquet is loosened and, with the pins, removed. A figure-of-eight spica is then thrown over the stump and around the waist, the final turns helping to support the stump and holding it snugly against the pelvis.

Of the 267 cases of disarticulation at the hip-joint reported, fifty-three, or 19.8 per cent, died. In the fatal cases recorded, there are a number that died from intercurrent disease, such as pneumonia and apoplexy, although the cause of death was not justly referable to the operation. Of the

several cases of death from sepsis, one died on the twenty-sixth day. The 267 amputations were performed by 123 different operators, and under all the varying conditions of civil and military practice.

ATROPINE TREATMENT OF INTESTINAL OBSTRUCTION.

POLACH (*Wien. Klin. Woch.*, April 25, 1901) reports the case of a thin, anemic woman, aged sixty-eight years, with a previous history of constipation, that presented herself for treatment after two days of absolute constipation. The urine contained some albumin. High glycerin enemas were tried with absolutely no effect, and her condition became steadily worse. On the fifth day the patient went into collapse; subnormal temperature, pulse 110 to 120, cold extremities, dry tongue, extreme prostration, and an entire absence of peristalsis. The patient was so weak that operation was out of the question, so as a last resort a hypodermic injection of .002 grain of atropine sulphate was given. She soon reacted, and the next day the injection was repeated, after which she passed some flatus and feces. Her condition was so much improved that she was able to retain champagne and other liquid nourishment. She continued to steadily improve, the following day had a large movement, and the stomach became again perfectly retentive; the muscular rigidity and tympany disappeared, as did also the albumin from the urine. When seen ten days later her condition was in every way normal.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., F.R.C.P. LOND.

There has recently been issued the report by Professor Sims Woodhead on the bacteriological diagnosis and the antitoxic serum treatment of cases of diphtheria admitted to the hospitals of the Metropolitan Asylums Board during the two years 1895 and 1896. The report, though somewhat belated, is of special value from the large number of cases which it covers. Those who have the fortitude to study in detail a report of upwards of 300 pages, mainly of a statistical character, may obtain it from P. S. King & Son, Great Smith Street, Westminster, for the payment of 7s. 6d. I will endeavor to give you concisely some of the general conclusions summarized in the report. For the first three months direct microscopic examination of the material taken from the "swabs," as well as from cultivations, was made, but subsequently this was relinquished in favor of the examination of cultivations only. The number of cultivations examined was 27,128. Bacilli were found in 73.42 per cent of these cases, and in only 5 per cent did bacteriological examination fail to assist diagnosis. The persistence of the diphtheria bacillus for periods up to eight weeks is a marked feature in the bacteriology of the disease. In one or two cases they were found over periods of six and seven months from their first detection. When only diphtheria bacilli are found, the long bacillus appears to be the most active. Mixed infections are always more fatal than pure diphtherial infections; contrary to the common belief, staphylococci were found to be more dangerous auxiliaries than streptococci. Mixed infection was most severe when the short forms of diphtheria bacilli were present. There has been a great reduction since the introduction of antitoxin in the mortality of scarlet fever cases complicated by diphtheria. Woodhead attributes this to the early use of antitoxin in these cases. In scarlet fever cases the streptococcal complication is more common and apparently more fatal than in ordinary cases of diphtheria. The highest percentage mortality appears to be between the first and second years of life, then in the first year, and after that it falls off regularly up to the end of the fifth year, and then more rapidly up to twenty years and upward. Of cases under five years of age, only 31.52 per cent died as against 47.4 per cent in the preantitoxin period. As regards the percentage mortality where different parts are affected, in the year 1895 it was found that when the fauces alone were affected the percentage death-rate was 12.1; where the fauces and nares were affected, 39.5; fauces and larynx, 37.3; larynx only, 30.7; fauces, larynx, and nares, 62.2. In 1896, when the employment of antitoxin had been greatly improved, there was a considerable fall in the percentage mortality of these severe cases. Where antitoxin was not given in the more serious cases, with larynx and nares affected, the percentage mortality was very high—82.6 in

1895, and 64.2 in 1896. In the preantitoxin year, 1894, the mortality in tracheotomy cases was 70.4 per cent, and in 1896, 41.46. Taking into account the less number of cases requiring tracheotomy and the lessened percentage mortality, the saving of life in one year on tracheotomy cases alone works out at 225.

The free use of antitoxin does not raise the percentage of cases of albuminuria. Its use has also perceptibly diminished the cases of nephritis, and certainly has not aggravated the renal complications. It has also reduced the number of cases of adenitis. Joint pains, though transitory, are increased. Woodhead attributes this not to the antitoxic substance in the serum, but to changes in the blood caused by the serum. Antitoxic serum has some effect in producing temporary rises of temperature, but only during the periods of joint pains and serum rashes. These rashes are of trifling importance, and though the associated fever may somewhat retard convalescence, they cannot be for a moment balanced against the great decrease of mortality.

Among the cases of paralysis following diphtheria, the death-rate (32 per cent) was actually higher among those not injected with antitoxin than among those where antitoxin was used (30.5 per cent). Antitoxin cannot cure the degeneration of the nerve, but it can neutralize the diphtheria toxin, and so put a stop to the advance of the degenerative changes due to its action.

In some cases it was found necessary to inject antitoxin because of recrudescence of the disease. In such cases the amount of antitoxin injected has only been sufficient to neutralize the quantity of toxin in the body at the time of injection, the patient being still left in a comparatively unprotected condition, with the result that he contracts a second attack of the disease. An arbitrary interval of fourteen days was taken as evidence of the occurrence of such a recrudescence. This emphasizes the importance of administering a sufficient amount of antitoxin not only to neutralize the poison that is actually present at the time of the injection, but to leave a sufficient amount in the body of the patient to neutralize any of the poison that may be formed for some little time afterward, in order that the tissues may be left free to carry on the process of regeneration by means of which the membranous patches are thrown off and the wounded surface healed.

Hemorrhagic diphtheria was almost consistently fatal, only three cases out of 181 recovering, and each of these had been injected.

There appeared to be a diminished liability of the lungs to inflammatory change in severe cases of diphtheria, treated by antitoxin.

There is an elaborate series of tables giving the results of large and small quantities of antitoxin administered at earlier and later stages of the disease. A careful study of the results obtained invariably shows that the larger the quantity of antitoxin given during the earlier stages of the disease the lower is the death-rate, whilst the larger the number of cases that come under treatment in the later stages, however large be the quantity of antitoxin given, the higher is the percentage mortality resulting from the addition of these cases.

The second part of the report is of a highly technical character and is devoted to an account of the preparation of diphtheria antitoxin.

Professor Woodhead in discussing the mode of production of these antitoxins expresses his concurrence in the theory that they are the result of a special stimulation of cells, especially of the connective tissue cells, by special toxins, and that there is an extraordinary development of the special resisting function of the cell, which may go on to such an extent that the antitoxin overflows into the fluids in which the cell is bathed, just as the special toxins and enzymes overflow into the fluids around the toxin-producing bacteria, or the enzyme-producing yeasts. Ehrlich insists that it is only when a substance can be taken into or bound to the cell, and combined with some element in that cell, that any immunity against pathogenic substances can be gained by the cell. This involves the theory that a toxin must be assimilated by the cell before an antitoxin can be produced; consequently the whole question of antitoxin production must be closely bound up with the process of nutrition. "As the result of the assimilation of the proteid toxin we have the production and overflow of antitoxic substances from the specially stimulated cell, but the production of immunity against disease or the secretion of antitoxin appears to be only a side issue, as it were, or rather part

of a general process going on where albuminoid substances are being assimilated by living protoplasmic cells. To put it more bluntly, the cells of our body are able to acquire immunity against organic toxic substances only because they are capable, in the process of nutrition, of taking these proteid toxic bodies into combination."

We have been visited in London by a scare of a smallpox epidemic, and vaccination is the fashion of the moment. Although some 160 sporadic cases are now under treatment, there has not yet been the slightest tendency to epidemic prevalence. However, the warning has been sufficient to strain beyond breaking point the faith of many antivaccinationists and the conscience of many conscientious objectors.

A large London hospital has recently been unfortunate in suffering two deaths from "tetanus" after subcutaneous injections of gelatin for the cure of aneurisms. The evidence given in the coroner's court told one nothing of grounds on which death was attributed to tetanus. It is hardly probable that any article contaminated by the bacillus can have been used in the preparation or administration of the solution. Moreover, similar symptoms have been recorded in other cases. A writer in the *British Medical Journal* suggests that the symptoms were due to formation of capillary thrombi in the nervous system, leading to fatal convulsions. Such thrombi would be more likely to occur in subjects of aneurism, whose vessels were already affected by endarteritis.

Moynihan publishes a note of some cases in which he has used gelatin subcutaneously in innominate aneurism with no benefit whatever; in the epistaxis of hemophilia along with nasal plugs with excellent result, after nasal plugging and hamamelis had failed; in hematuria after operation on the kidney with success; in place of calcium chloride to control the oozing of blood that frequently endangers operation in subjects of chronic jaundice—here again the results were good; in a case of prolonged uterine hemorrhage with apparent benefit. He employed a two-per-cent solution in normal saline fluid. If, however, as we are told, administration by the rectum is equally satisfactory, it is certainly desirable that this latter method should be employed.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Phototherapy as a means of curing skin diseases has already been tried extensively by different authors, and Finsen has published a work on the subject. A French dermatologist, Dr. Leredde, former assistant of Fournier, and director of the Paris Dermatological Institute, which has been recently started, has written two articles on the subject, one of which has appeared recently in *La Presse Médicale*. Dr. Leredde shows the action of the chemical or ultraviolet rays, which have a deep-seated action, and can therefore penetrate the dermis and act upon the intradermic tubercles seen in lupus. This is quite different from what is usually seen with the ordinary reagents, which act superficially. Moreover, there is no such destructive action as is seen with the Roentgen rays, the most that is seen being some redness and the production of phlyctenæ. According to Dr. Leredde the scars produced by this treatment as applied to lupus are quite smooth and regular, with the exception of certain forms of lupus with deep excavations, and he has so far seen no pigmentation. There would seem to be no pain during the course of the treatment. Dr. Leredde recommends an apparatus which is more simple and less expensive than that of Finsen, and which has been invented by Lortet and Genoud. The cost of using this is much less, and as a consequence it will be found easier to treat all sorts of patients. Dr. Leredde compared phototherapy to the use of the galvanocautery, scarification, and extirpation, and indicated that in some cases the latter methods might be sufficient when the size of the lupus was not too great. Phototherapy should replace them when extirpation would leave too prominent a scar, and as a general rule it might be said that this treatment should always be tried in all severe forms when a radical operation cannot be carried out.

It would seem that goat's milk, which has for so long a time been rejected on account of its odor and its composition, is about to be used much more extensively. Dr. Marfan has shown that in fresh milk there are certain zymases which are destroyed by heat. Goat's milk does not contain any more casein than woman's milk, and accord-

ing to Crepin's analyses the amount of casein and butter is about the same as in human milk. Dr. Boissard, obstetrician of the Paris hospitals, published a report last year on the results given by the use of goat's milk, and the latter were favorable. There is a special establishment in Paris where goats from the French and the Swiss Alps are kept. The greatest cleanliness is observed, the dugs being washed at milking time with boiled water; the milkmen are obliged to wash their hands with soap; the bottles and milk cans are sterilized by being boiled in a solution of carbonate of sodium. It is a well known fact that the goat does not contract tuberculosis readily, and this of course is a guarantee of some importance.

Camphorate of pyramidon is a new drug which has been tried at Lyons in the hectic fever of consumptive patients. It was given in doses of from 0.50 centigramme to 1 gramme. The results were quite satisfactory, the patients being much relieved.

Cacodylate of soda, which is being so extensively used in France at present, has been employed recently by Dr. Lannois, of Lyons, in the treatment of chorea. The author cites five cases, where the usual remedies had been tried without result. Subcutaneous injections of from two to four centigrammes of cacodylate were used and gave most gratifying results.

In an article published in the *Archives of Therapeutics* by Dr. Huchard, the well known heart specialist, the author dwells upon the defective manner in which iron is given in certain cases of chlorosis. Sometimes the stomach is at fault, and the first requisite is to cure the dyspepsia so often seen in such cases. The patient should be told to rest as much as possible. The food should be light; alkalies may be given before meals in small doses, and hydrochloric acid afterward. When there is fermentation the stomach should be washed out. Constipation should be avoided as much as possible. The nervous system is often at fault, and should be toned up by the use of douches either tepid or cold, or of arseniate of strychnine, three to four pills of half a milligramme being given daily. It is only after two to four weeks of antidyspeptic treatment that one can begin giving iron. It should, however, be remembered that iron increases dyspepsia when there is hyperchlorhydia, and is not absorbed in hypochlorhydria. In such cases hydrochloric acid should be given after meals. The best preparations according to Dr. Huchard are the protosalts, such as the protolactate, protochloride, protoiodide, protoxalate. One should begin with small doses, 10 centigrammes twice daily, and never give more than 40 centigrammes. Another point to be remembered is that it is advisable to discontinue the treatment after six weeks for fifteen days. If the gastric functions are good, the treatment may be renewed.

The statistics of the Pasteur Institute were published last June by Dr. Viala in the Annals of the Pasteur Institute, and the results indicated are most gratifying. Cases of rabies are more frequent in France than in most countries, though the laws have been so framed as to prevent it. The latter, however, are not carried out in a sufficiently strict manner. In 1897, 1521 persons who were bitten were treated at the Pasteur Institute, and only six died from rabies, which makes a proportion of 0.39 per cent. In 1898 there were 1465 cases, with three deaths, or 0.20 per cent; in 1899, 1614 cases, with four deaths, or 0.25 per cent; and in 1900, 1420 cases, with four deaths, or 0.28 per cent. The researches of Roux and Novard have shown that the sputum of a dog suffering from rabies is only virulent twenty-four to forty-eight hours before the onset of the disease, so that if after three or four days there are no signs of rabies in the dog there is no danger. Death takes place in eight or ten days at the latest, so that if this does not occur within that time all danger is past. The treatment at the Pasteur Institute should be begun as soon as possible, within the first week, and this is specially true for wounds of the head. The treatment at the institute lasts eighteen days usually.

Mucomembranous colitis is a disease which sometimes baffles the skill of the physician, more especially in the treatment of one of its most distressing symptoms—constipation. Dr. Doumer, a Belgian physician, has been trying for this galvanic currents with excellent results. The first patient who was subjected to this treatment had been suffering from constipation for a long time, with symptoms of mucomembranous colitis, and multiple stenoses of the ascending colon. He was treated at first with a 30-milliampere current, which was increased later to 70 or 80. After ten days his consti-

pation disappeared, as well as the other symptoms. The treatment was applied to five other patients with good results. The following technique is used by the author: Two large tampons of coal, about six centimeters in diameter, are covered over with chamois skin, saturated with salt water and placed in the iliac fossæ. During the first minute the current is kept at 30 milliamperes; then a change in the direction of the current is made and the strength allowed to increase, sometimes up to 120 or 150 milliamperes.

The researches made by Russian physicians are extended and received with care by the French papers, and in a recent number of the *Tribune Médicale*, the editor of which, Professor Laborde, is so well known on account of his treatment of asphyxia by rhythmic tractions of the tongue, several interesting articles on new therapeutical agents or treatments are published. The use of bicarbonate of soda in a two-per-cent solution in burns and suppurating wounds is favorably spoken of. Vladimirov, Georgievsky, Yoffe, Botshkovsky, and others have employed this agent. Vladimirov considers this method quite harmless, antiseptic, and analgesic.

Dr. Rostovtzev has described in the *Wratsh*, the well known Russian medical paper, two cases of tetanus, one of which he treated by antitoxic serum and the other by injections of an emulsion of brain and medullar substance of a calf. The latter case was quite serious, but the injections produced a most marked effect.

Lionbomoudrov, a Russian military surgeon, has been treating 200 cases of dysentery, and in the more serious cases he had recourse to subcutaneous injections of saline solution. About 400 to 500 cubic centimeters was injected. Out of seven cases treated in this manner, the injection was unable to save two patients, who were dying when treated. In the other five cases a manifest improvement was noted, which continued until a cure was achieved.

According to Shourighin, who has been using cacodylic acid in various complaints, this drug cannot be considered as a specific in any disease. The author considers it best to give the drug by the mouth, rather than subcutaneously; the latter method should only be used when there is cerebral anemia, ulceration of the stomach, or gastroenteritis.

Ivanov has found methylene blue as much of a specific as quinine in the treatment of malaria, though not so rapid in its action. Other coloring matters proposed by Ehrlich, such as aniline blue, produce the same effect, but these different drugs are differentiated by the greater or lesser degree of irritation of the urinary tract which they produce. This phenomenon is controlled by the use of magnesia, cinnamon, and nutmeg. Methylene blue is specially useful when nervous symptoms are predominant. One grain in three doses should be given in the twenty-four hours. Relapses are no more frequent after its use than after that of quinine. Large doses of this drug produce a slight leucocytosis of short duration. The parasites of impaludism are destroyed, the more mature forms are reduced to isolated segments; the chromatic substance is preserved. The sporulated forms are modified, and incompletely developed. The falciform bodies are transformed and lose their vitality.

Graenlich has been examining the pharmacological properties of validol, which is a combination of menthol and valerianic acid. His conclusions are that this drug cannot replace menthol, as it has no analgesic or antiseptic properties. Besides, it has a slightly irritating action.

At the Congress of Gynecology, Obstetrics, and Pediatrics, held at Nantes last September, Dr. Baudron, of Paris, read an essay on the treatment of anteflexion and its consequences, dysmenorrhea, and sterility. Important operations are not indicated in such cases, and the best results are obtained by progressive dilatation with laminaria, followed by the use of catheterism with Hegar's dilators. Professor Pinard spoke favorably of the use of aniodol in obstetrics, it being used in his service not only for vaginal injections, but also to wash the eyes of new-born infants. Ectopic gestation was discussed as to its treatment and etiology, one of the members of the congress going so far as to attribute it to degeneracy. Professor Pinard made the remark that the true cause of this abnormal condition was not as yet demonstrated.

Dr. Comby, a well known specialist in diseases of children, read an essay on arthritism in children, in which he showed a tendency to include under this title a great number of symptoms observed in sickly children. His colleagues took him to task

on several chapters of his discourse, such as the treatment to be followed and the symptoms observed. Scrofula was also the subject of a discourse by Dr. Gaston, who tried to demonstrate that this affection does exist and is due to hereditary causes. Attempts have been made recently to show that scrofula is due either to syphilitic or tuberculous taints, or else to local chronic infections.

Solutions of persulphates have been recently introduced into therapeutics by Garel, Willian, and Betuel, and last year Professor Robin confirmed the value of these agents in the treatment of anorexia. Some original researches have been carried out by Dr. Rigot, who has experimented on animals, and found that persulphate of sodium, when injected into the venous system, increased the number of heart-beats as well as of the respiratory movements, and, when the dose was sufficient, caused death, the blood being stained a dark-brown color. When injected in small doses the weight of the animal increased, in some cases after tuberculous inoculation. Before trying the drug on the human being, Dr. Nicolas used it in artificial digestion with diastatic, pancreatic, and peptic preparations. The digestion was slightly impaired when small doses were used, very much so when larger doses were employed. Dr. Rigot thereupon tried persodine, which is a mixture of persulphate of sodium and ammonium, on forty-one cases of tuberculosis, anemia, syphilis, and nervous affections. The most noticeable result was a rapid increase in the appetite, which comes on the fourth or fifth day. There may be some slight pain and a little diarrhea the first few days—in short, persodine acts like a laxative. Certain preparations, such as iron or raw meat, are readily absorbed, there is an increase in weight more or less accentuated, and more or less persistent, and the strength of the patient seems to come back. The results are different, according to the disease the patient is suffering from. During convalescence from an acute affection or a surgical operation, the results are quite appreciable. In patients suffering from overwork or nervous affections the appetite comes back, but the increase in weight is less pronounced. In chloroanemia, the gastric troubles cease, the constipation is no longer so pronounced, and the facial pallor is less pronounced. In tuberculosis the question is more complex. In the advanced forms, where there is fever, the results are often rather poor, but where there is no fever, and the lesions are not pronounced, the illness can be stopped for a time. The usual dose should be a soupspoonful every day, and it should be continued for twenty days. It should be taken in half a glassful of water about an hour and a half before the midday meal.

At a meeting of the Society of Therapeutics Professor Bardet, the well known pharmacologist, said that it is a great mistake to believe that it is necessary to give acids to increase the general acidity of the liquids of the body. In certain patients suffering from liver complaint and sent to Vichy, where they took the waters, the acidity of the urine, which allows of gauging, increased from 0.5 to 3.0 and even more. This phenomenon shows that the acid function is under the influence of the condition of the bodily health, and that, the latter being ameliorated by the treatment, there is an increase in the quantity of uric acid formed. The contrary may also be seen: a patient suffering from neurasthenia was given two to three grammes of phosphoric acid, and the acidity of his urine decreased noticeably. In certain forms of dyspepsia alkaline or neutral urine may become acid as the result of the treatment. Dr. Mathieu, acting for Professor Delorme, described the results obtained in the treatment of gonorrheal rheumatism by the use of galvanic currents. After the first application there is noticeable improvement: diminution of the edema and of the pain. In a case belonging to Dr. Mathieu there was no ulterior atrophy or stiffness. Dr. Delorme in one case tried salicylate of methyl for one joint, and electricity for the other, and the results were much better with the latter mode of treatment.

Cacodylate of soda is still very much to the fore as a therapeutic agent, and articles are being published frequently on its use. Cacodylic acid is arsenous acid, AsO_4H_3, in which OH has been replaced twice by the methyl group CH_3, and its organic properties are quite different from arsenous acid. Dr. Gautier, the Professor of Chemistry at the Faculty of Medicine, recommends using it hypodermically. He considers this the only rational way of administering it, and he advocates the two following formulæ:

(1) Pure cacodylic acid, 5 grammes;
Pure caustic soda, q. s. to neutralize so as to obtain the necessary reaction with phthalein;
Hydrochlorate of cocaine, 8 centigrammes;
Creosote dissolved in alcohol, 5 drops;
Distilled water, q. s. for 100 Cc.

(2) Pure cacodylate of soda, 6 gr. 40;
Phenicated alcohol (10 per cent), 10 drops;
Distilled water, 100 Cc.

Sterilize.

It is best to begin with doses of two centigrammes before reaching doses of 10 centigrammes, which should rarely be exceeded. It is well to give this drug during ten to twelve days, according to Dr. Letulle, and then omit for a week.

Notes and Queries.

THE BRITISH CONGRESS ON TUBERCULOSIS AND THE PREVENTION OF THE DISEASE.

The final meeting of the Congress was held on July 26, with the Earl of Derby in the chair. The following resolutions were unanimously adopted, which are so important that we reprint them:

1. Tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man. Indiscriminate spitting should, therefore, be suppressed.

2. All hospitals and dispensaries should present every out-patient with a leaflet on the prevention of consumption, and insist on the use of a pocket spittoon.

3. Notification of tuberculosis should be established, when possible. If compulsory notification is impracticable, voluntary should be encouraged.

4. The provision of sanatoria is an indispensable part of measures for the diminution of tuberculosis.

5. Medical officers of health should use all their powers and relax no effort to prevent the spread of tuberculosis by milk and meat.

6. In view of the doubts thrown on the identity of human and bovine tuberculosis, the government be requested to institute an inquiry into the subject.

7. The educational efforts of the great national societies for the prevention of tuberculosis are deserving of support.

8. A permanent international committee be appointed to report on the measures for the prevention of tuberculosis in different countries, to publish a popular statement of these measures, and to keep and publish a record of scientific research in relation to the disease.

9. Overcrowding, defective ventilation, and the damp and insanitary dwellings of the working classes diminish the chances of curing consumption and are predisposing causes of the disease.

10. The attention of governments and charitable persons be called to the necessity for establishing antituberculosis dispensaries.

SUBSTITUTION: A MEDICAL EVIL.

The *Medical News* of August 24, 1901, has this to say of this important matter:

"We physicians hardly realize that substitutions and adulterations are as diligently worked off on us and our patients as in the patent medicine field; that non-official leaves are ground up with official leaves; that tinctures are made from fluid extracts instead of from fresh drugs; and that old, weather-beaten drugs are sold in the market for use in the preparation of potent remedies.

"The high-class pharmacists of the large cities are so wholly above reproach that we would depend on their testimony rather than on our own in deciding about the purity of drugs used; but who of us whose prescriptions every day are filled up-town and down-town, in the suburbs and in neighboring cities, have any guarantee that they are filled in such a way that they will have the strength and potency that we in all good faith prescribe?

"The United States Pharmacopœia is the official code which determines the strength of all preparations, and on it the profession base their prescriptions; but it is a startling fact that although the last twenty years have been the most brilliant in research work in the physiological reaction of drugs, yet far too many pharmacists are using the Pharmacopœia of 1880, if they use any at all, the edition of 1890 not having as yet gotten past the minority.

"We may not take the matter of substitutions quite as seriously as do our friends who dispense drugs under their signatures, but we certainly ought to treat it more seriously than we do; for our reputation as well as our patients will undoubtedly suffer. That we permit this state of affairs to exist at all is due to the very wide-spread carelessness mingled with the trustful ignorance with which we put our prescriptions in our patients' hands, not knowing where or how they will be filled."

—THE—

Therapeutic Gazette.

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Original Communications.

METRORRHAGIA AT THE EXTREMES OF LIFE—IN YOUNG GIRLS AND OLD WOMEN.

BY BARTON COOKE HIRST, M.D.,

Professor of Obstetrics in the University of Pennsylvania.

Menstruation begins as it ceases. The flow is at first scanty and infrequent. The menopause also should be established by a diminution in the quantity of the discharge and an increase in the interval until it stops altogether. Exceptions to this rule are quite commonly observed in elderly women at and after the menopause. Profuse and long-continued menstruation in young girls, however, is rare. The very rarity of the condition makes it interesting and not a little puzzling to the general practitioner. The record of four typical cases, therefore, recently under the writer's care, may prove helpful as a contribution to the study of the diagnosis and the treatment of this peculiar kind of metrorrhagia.

CASE I.—Statement of mother about her daughter: M. McK. was born on January 22, 1881. She was a twin and a seven months baby. The other, a boy, was dead some time before birth, which was given as the reason of their premature delivery. She

was a small and feeble baby and was kept alive with difficulty. When she reached the age of ten she breathed entirely through her mouth and had a great many colds, one after another. Dr. Musser, her physician, advised an operation on her nose or throat to remove a growth which he had detected. After that was done she had very few colds and her health was much improved. When she was about twelve she became unwell; sometimes skipping a month, but fairly regular until February, 1895. From this time until about the middle of June she had a constant flow. She was sent to Europe in June, and flowed profusely on the voyage, but while abroad for two months had no show at all. The end of August she commenced again, and when she reached home in September she was as bad as ever. September 30, 1895, curettement by Dr. Hirst. The uterus was thoroughly scraped, a large quantity of hypertrophied endometrium being removed. Nothing else abnormal in pelvic organs. The operation did not benefit her in the least; she flowed continuously for some eight months. Curettement repeated in New York in June, 1896: entirely unsuccessful; metrorrhagia continued. Third curettement by B. C. Hirst in January, 1898: entirely successful at last report, a couple of years later.

Dr. H. L. Williams examined specimens carefully and reports a glandular and interstitial endometritis, but no sign of malignancy (Jan. 17, 1898).

January 18, 1898.

DEAR DOCTOR HIRST—I have examined carefully the specimens from Miss McK., and find a typical case of endometritis hyperplastica glandularis. The interstitial stroma is also in places hyperplastic and hemorrhagic.

While the glands are numerically increased, corkscrew formed, and in places dilated and cystic, the lining epithelium does not share to any considerable extent in the hyperplasia, and there is no apparent tendency to malignancy.

H. L. WILLIAMS.

This case exhibited a most persistent metrorrhagia for three years, from the patient's fourteenth to seventeenth year; finally cured by repeated curettements.

CASE II.—E. McK.; sent by Dr. A. H. Mellersh, of Manayunk, November 22, 1898. Aged 15; menstruation established last February; quite profuse and long continued from the beginning. Lately has lasted ten days to two weeks and has been extremely free. The girl is very anemic in consequence. She has been taken from school and leads the life of an invalid.

Examination under ether: Uterus displaced backward; not freely movable; otherwise apparently all right. Recommended curettement and suspension of uterus. Operation by the writer in the Howard Hospital. The operation resulted in a perfect symptomatic cure.

Reported April 1, 1901. In perfect health; good color; well grown. Menses perfectly regular every four weeks; lasts five days, not too profuse; no pain at all. She is now a rosy-cheeked schoolgirl, a striking contrast in appearance to the pale, sickly creature she had been three years before.

The pathological report on the uterine scrapings by Dr. H. L. Williams stated that there was an interstitial endometritis with such an unusual infiltration of round cells that the pathologist suspected a sarcoma.

CASE III.—Miss McK., sister of Case II (patient of Dr. A. H. Mellersh). Aged thirteen, March 1, 1901. Menses began January 5, 1901, lasted a week; returned January 19, lasted a week; returned every two weeks, but not very profuse. On March 15 menses appeared; lasted till the 24th; extremely profuse, hemorrhagic; patient much reduced in strength and very pale; not much pain. Dr. Mellersh made an examination and found retroversion; put in tampons. The girl has been tamponed every other day for ten days.

Examination (under ether): Uterus in good position, freely mobile; no disease of appendages. Recommended curettement after trial of hydrastinin, stypticin, and ergotin without effect. Operation June, 1901.

Report October, 1901: Menses regular, lasts six days; good general condition; no return of metrorrhagia.

Pathological report, June 7, 1901: Nature of specimen, endometrium. Examined by J. C. Hirst.

Specimen consists of small masses of a whitish tissue, none above the size of a small pea. Only some six or seven masses in all.

Microscopically: Surface epithelium everywhere preserved, in single layer. Glands greatly increased in number, *not* dilated, and many showing corkscrew form. Epithelium lining glands is throughout in single layer. Very small amount of free blood.

Diagnosis: Chronic hyperplastic glandular endometritis.

CASE IV.—Miss L. H. Aged thirteen, December 4, 1900. Menses established July 1, 1900; returned in four weeks. August and September regular, but very profuse, lasting a week. October regular, but profuse leucorrhea in the interval; afterwards menses regular, not so profuse, but profuse leucorrhea continued. May 6 menses appeared, and lasted five days; again May 25, a great deal of mucus with it.

Pain appeared on right side May 3. Examination under ether May 10, 1901. Right ovary very much enlarged and cystic.

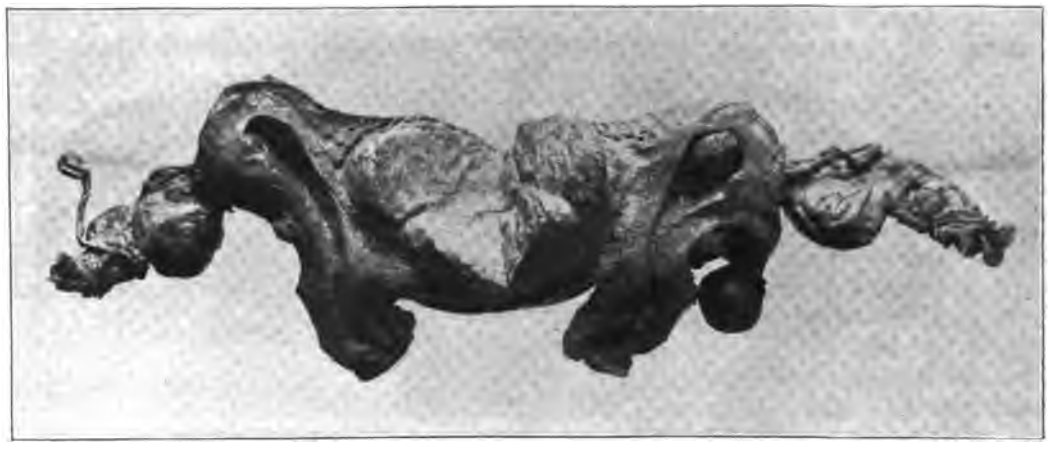
Recommended curettement; result good. Three months later menstruation regular, rather scanty; leucorrhea has ceased. General health good.

are few in number, not dilated, but the interstitial stroma is greatly overgrown. Quite a large amount of free blood present in the stroma of the endometrium, and the capillaries are for the most part dilated.

Diagnosis: Chronic interstitial endometritis.

Metrorrhagia in women after the menopause should immediately suggest the idea of malignancy, and should imperatively call for a careful pelvic examination, including perhaps an exploratory curettage. There is nothing more tragic in medicine than the hundreds of lives sacrificed to the reluctance of the patient to seek advice on the appearance of this symptom, or to the indifference of the physician when he is told of it.

Two typical histories from the writer's most recent case-book may serve as illustra-



CASE I.—Mrs. H. Adenocarcinoma of endometrium.

There is still, however, a cause of pelvic congestion in the pathological condition of the right ovary, which may indicate the beginning of an ovarian cyst or a dermoid. If the ovary increases in size, or if the uterine symptoms return, an oophorectomy will be recommended.

Pathological report, June 7, 1901: Nature of specimen, scrapings from uterus. Examined by J. C. Hirst.

Specimen consists of quite a large amount of tissue, dark red in color, and occurring in masses the size of one's little finger-nail. The amount is fully equal to that to be expected from an adult uterus.

Microscopical: Consists almost entirely of blood. The endometrium is in very small amount, showing the surface epithelium wall preserved, in single layer. The glands

tions of what metrorrhagia, after the menopause, usually means:

CASE I.—Mrs. H., aged sixty-four, married forty years; never pregnant. Menopause at fifty-three. At the age of fifty-seven metrorrhagia appeared; a physician found a polyp and removed it; the bleeding ceased for about a year, and then returned. She was treated by this same physician: intra-uterine applications were made with some benefit. This treatment was continued at intervals for four or five years (!) without a single attempt at exploratory curettement, although the metrorrhagia reappeared persistently. Applied to the writer March 22, 1901. Examination showed uterus not enlarged to an appreciable extent; cervix perfectly normal; a subperitoneal fibroid on posterior wall, large as hen's egg; nothing

abnormal in appendages or broad ligaments. Exploratory curettement next day under ether; very large quantity of thickened endometrium removed. The pathologist, Dr. H. D. Beyea, found far advanced adenocarcinoma in the specimens. Complete hysterectomy; removal of appendages and broad ligaments by combined vaginal and abdominal method. Good recovery.

The question of metastasis or recurrence is still uncertain. This patient should no doubt have been operated on four or five years before.

CASE II.—Mrs. W., aged forty-eight; married thirty years; four children, last twenty-one years ago. Her menses ceased four months ago; returned during the past week in the shape of a hemorrhagic discharge, preceded by a profuse and foul-smelling leucorrhea. Examination showed a very large cauliflower epithelioma completely filling the vaginal vault and encroaching somewhat on the vaginal wall. By a very difficult combined operation the whole affected urea, the uterus, appendages and broad ligaments, were removed, with good recovery. The woman's condition in view of the paucity of symptoms was surprising. A physician in general practice might easily have delayed his first examination until the cancer had become inoperable.

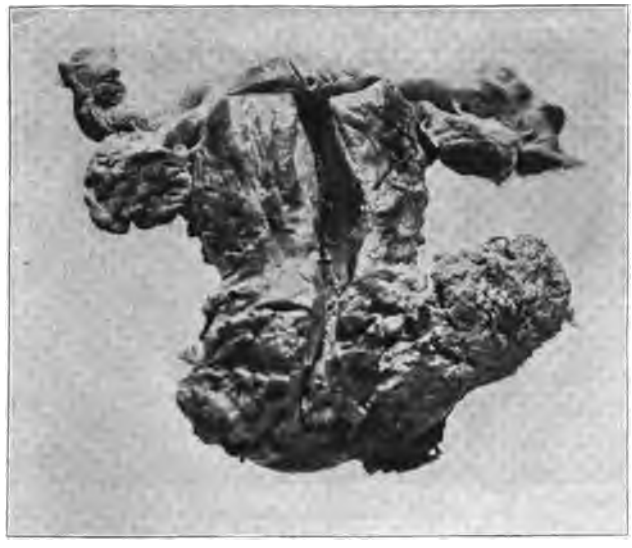
It seems almost a pity to point out that there may be another cause for metrorrhagia long after the menopause, but it is undeniable that in a very small proportion of cases the return of a bloody discharge years after the cessation of menstruation may be due to a simple condition easily cured, as is demonstrated by the following cases:

CASE I.—Brought by Dr. E. G. Rehfuss, September 24, 1901. Mrs. A., aged sixty-five. Menopause at fifty. A constant discharge, bloody only recently, began last spring. Vulva much irritated by discharge. No pain of any consequence.

Examination: Cervical polyp, size of cherry, protruding from os, probably not malignant. Curetted; polyp removed.

Microscopical examination: Senile atrophic endometritis; fibroadenomatous polyp of cervix. No malignancy in either. (J. C. Hirst.)

The symptoms were strongly suggestive of a malignant growth in the uterus, but the simple operation performed will undoubtedly cure the patient.



CASE II.—Mrs. W. Epithelioma of cervix.

CASE II.—January 7, 1899. Mrs. P., aged sixty-four. Menopause at fifty-two. A bloody discharge began sixteen months before my first examination, or more than ten years after the menopause. It became more profuse with each month, till finally it was hemorrhagic and large clots were passed. There was great hypertrophic elongation of the supravaginal portion of the cervix and the lower uterine segment, prolapse of the cervix, which was ulcerated, and complete inversion of the vagina. A careful exploratory curettage, including the use of the curettement forceps, removed considerable endometrium, but detected no growth *in utero*. The pathologist, Dr. H. L. Williams,

to whom the specimens were submitted, reported that while he could not state positively that there was malignant degeneration of the endometrium, nevertheless the appearance under the microscope was so suspicious as to compel him to advise hysterectomy. The operation was accordingly performed by the combined method, vaginal and abdominal, and the inverted vagina was suspended to the abdominal wall. On examining the uterus the writer was chagrined to find a mucous polyp the size and shape of a Lima bean attached to the uterine cornu on the right side; the curette and the forceps had slipped over it repeatedly. There was no malignancy at all.

Fortunately the patient recovered and is in perfect health (November, 1901), but the radical operation was unnecessary.

Conclusions.—There is a metrorrhagia in young girls due to glandular and interstitial endometritis, which, if neglected, may seriously impair their health; it is curable by curettement (perhaps repeated) and by the removal of any cause of pelvic congestion that may be present. There is a metrorrhagia in old women years after the menopause not due to malignant disease (which ought always to be suspected), but to a corporeal or cervical polyp and an accompanying endometritis.

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*CARBOLIC ACID: ITS USE AND ABUSE.**

By George W. Sargent, M.D.,
Seneca Castle, N. Y.

Having seen something of the uses made of carbolic acid by Dr. Seneca D. Powell, and having had an accident in handling it, which would ordinarily have been somewhat serious, but under the circumstances proved to be only an interesting incident, I have attempted what I know is a very incomplete *résumé* of its possibilities for good and evil, especially as regards the pure acid, with some remarks on the toxicology and the treatment in cases of poisoning.

Phenol, phenic or carbolic acid, is one of our most interesting and useful remedies. There is none more capable of harm, or more commonly used accidentally and with evil or suicidal intent. It is employed largely and carelessly by the laity, and held in somewhat superstitious regard by many, a few drops of the acid allaying all fears of infection. Every few days we hear of some accident or fatal result from it. It was formerly used as a remedy internally and by injection. It is still employed for the purpose of a preservative in preparations of antitoxin. Considering the large doses of antitoxin now given, an unsafe amount of the acid is liable to be injected, with a very deleterious influence on the heart and kidneys. Dr. George F. Cott, of the University of Buffalo, has shown that the bad results in children attributed to antitoxin, as nephritis and heart failure, are probably due to the carbolic acid.

In the *Medical Record* of March 11, 1899, Dr. Seneca D. Powell, of New York, asserts that alcohol is a perfect antidote to carbolic acid; moreover, that in connection with alcohol the acid is capable of greater service than generally supposed. Powell has demonstrated that the pure or 95-per-cent acid may be rubbed on the skin or held in the mouth with impunity until the skin or mucous membrane turns white, if the parts are then rinsed with alcohol, 95-per-cent. I am able to testify to the truth of this from experience, having unintentionally performed the experiment already alluded to on my own hands. I had on a table before me two two-ounce bottles labeled and filled respectively with carbolic acid and alcohol. Wishing to rinse my hands in the alcohol I picked up one of the bottles, poured a liberal quantity into one palm, and rubbed it over both hands as in the act of washing. I was not a little surprised to find, by the greasy sensation and the silvery color to which my hands were turning, that I had used the carbolic acid. However, a thorough rinsing in alcohol from the other bottle to my satisfaction promptly restored the normal color and feeling, with the exception of a slight sensation of dryness and roughness for the rest of the day.

Since Powell's paper this antagonism between carbolic acid and alcohol has been made considerable use of in minor surgery and in treating carbolic acid poisoning.

In many instances the pathogenic germ which the physician or surgeon has to deal with is beyond control with the agents at hand in the strengths ordinarily or safely used, but carbolic acid may be employed, with alcohol, in full strength, and by its means a suppurative or an ulcerative process

*Read at the quarterly meeting of the Ontario County Medical Society, in Geneva, Oct. 8, 1901.

can be checked, and one of healthy granulation produced quickly with rapid healing.

According to the THERAPEUTIC GAZETTE the pure acid is relatively less toxic to the normal tissues than the diluted acid, its penetrability is slight during a brief application, and its bactericidal action surpasses that of corrosive sublimate, from the fact that the action of carbolic acid is not materially affected by the presence of acids, alkalies, salts, or albumin; yet in some cases may be thereby considerably increased. Anthrax spores are destroyed by two-per-cent carbolic alone in thirty days, but by two-per-cent carbolic with one-per-cent hydrochloric acid in seven days; staphylococcus pyogenes aureus by carbolic alone in five minutes, but by one-per-cent carbolic with twenty-per-cent common salt in one minute.

One of the most speedy and satisfactory methods of treating an indolent ulcer of the leg is carried out in the following manner:

1. Curette and remove all unhealthy and false tissue.
2. Apply 95-per-cent carbolic acid for a moment till the surface turns white.
3. Apply 95-per-cent alcohol till the normal color of a clean granulating surface appears.
4. Protect the ulcer with a covering of short narrow strips of simple adhesive plaster applied criss-cross so as to leave little gaps for drainage.
5. Over this lay plain gauze.
6. Apply one or more roller bandages.

This dressing applied as often as necessary will result, I have found, in a rapid cure.

Carbolic acid is serviceable in mammary, tuberculous, and other abscesses. Here the cavity is first evacuated, then cleansed by irrigation, swabbing, or curetting, and filled or swabbed out with pure carbolic, then with alcohol, and finally again irrigated.

In this way a normal granulating surface may be secured in a surprisingly short time. A. M. Phelps, of New York, uses the pure acid in this way in tuberculous joints. Empyema, cystitis, hydrocele, etc., are amenable to carbolic acid, using a solution of half a drachm or one drachm to the ounce of water, followed with 25- or 35-per-cent alcohol. In the case of hydrocele a quantity of pure acid is injected and allowed to remain without further interference.

Erysipelas is successfully treated by painting the affected surface with 95-per-cent acid, and when the skin turns white, with alcohol. One of our members has told me of treating a case thus, but found it very painful, though effective. Others who have reported cases make no mention of pain. The brief application of the acid to the skin, or to an ulcer or other raw surface, is not painful.

Ivy poisoning is rapidly cured by a two-per-cent lotion, and the lymphangitis that is apt to occur in connection with infected wounds is usually readily controlled by it; also the redness, pain, induration, and other signs of inflammation in caked breast or mastitis. In cellulitis of the hand or foot an injection of pure acid may be made followed with one of alcohol, with a prior injection of cocaine to avert the pain of the needle. The pure acid is used in mastoid abscesses, in septic conditions of the endometrium, ischiorectal abscesses, furuncles, and other conditions. Some persons dread an operation, and will submit to any treatment, though much slower, rather than undergo cutting. With a specially constructed syringe that will follow the sinuous tracks of fistula *in ano* it is possible to accomplish a cure without a knife.

The danger of poisoning should always be borne in mind. The long-continued application of phenol might be accompanied with absorption and poisoning. Death has resulted from absorption through the skin. I may mention the case of an infant seven days old dying from a few drops on the fingers of the nurse. The proper use of the acid does not contemplate usually protracted or continuous applications. Ignorant persons sometimes wrap the fingers or toes with the acid in full strength, or in very strong mixtures, with subsequent gangrene.

There seems to be an opinion that gangrene is apt to occur when it is used on the extremities even in weak solutions, but this is doubtless a very rare result. An instance reported where two brothers, both young men, never ill previously, had gangrene of the fingers following the use of a solution containing only one and seven-tenths per cent carbolic acid was regarded as due to idiosyncrasy. There is no danger so far as I know from the pure acid followed with alcohol.

The treatment of poisoning cases has been very unsatisfactory. Woodman and Tidy cite twenty-one instances during a period of

five years with only one recovery, the doses taken being usually one to two ounces. The smallest fatal dose I have found noted is one-half ounce. The effect of a poisonous dose is sometimes extremely rapid, but usually several hours elapse before death.

The antidotes printed on the manufacturers' labels and in the books have not proven efficient.

The alkalies, sulphate of magnesium, sulphate of sodium, and saccharate of lime, in excess, have some power. Oils retard absorption. Heart stimulants, as atropine, strychnine, and caffeine, are useful. In one instance 2½ grains of caffeine, dissolved in water with the aid of salicylate of sodium, given hypodermically, and repeated in an hour, restored a man from a state of coma. Acetic acid or vinegar is claimed to be efficacious. Bleeding, one pound of blood being taken, was once successful. Emetics are of no service because the stomach is benumbed or paralyzed by the acid.

During the past two years, since the antagonism between phenol and alcohol has been made prominent, several cases of recovery where the patients were apparently moribund have been reported after the exhibition of alcohol. In one case the stomach was washed out with pure alcohol. A 25-per-cent solution will counteract the acid on the skin, and it is probable that whiskey or any strong alcoholic would answer for internal use.

How this antidotal property of alcohol is exerted is not certainly known. There may be a true antagonism between the two substances, or the alcohol may act simply as a solvent, though its influence seems to go further than that. However this may be, we have the fact that alcohol will prevent and remove the caustic and poisonous effects of the acid.

The primary step in poisoning is to wash the stomach out with alcohol; then whiskey may be given hypodermically with the idea of neutralizing the acid in the blood. Other heart stimulants may be required. As the acid is quite rapidly taken up into the blood it has been suggested that no treatment is complete without bleeding, but that has not been done to any great extent to my knowledge.

I find four cases reported during the past eighteen months—three in the *Medical Record* and one in the THERAPEUTIC GAZETTE of September 15. There have been others, but I am unable to refer to them at this time. In three of these alcohol was given the undoubted credit for the recovery. In two it was the only agent used until the acuteness of the attack was over. In one sulphate of magnesia was employed, but not considered as having much influence on the case. In the fourth the act of drawing forward the tongue seemed to be beneficial by admitting air to the lungs.

In conclusion, it seems safe to say that alcohol is the most perfect, the most certain, and the most handy antidote to carbolic acid that we possess.

THE TREATMENT OF ACUTE PERITONITIS, ESPECIALLY THAT ARISING FROM PERFORATIVE APPENDICITIS, SHOULD BE ANATOMICAL AND PHYSIOLOGICAL REST.

BY BYRON ROBINSON, B.S., M.D.,
Chicago.

For the past fifteen years I have been constantly working on the peritoneum as regards both practice and experiment. The peritoneum in its normal state is not sensitive to handling, but when attacked with inflammation it is exceedingly sensitive, and is acutely sensitive to any movement of viscera or abdominal muscles. Hence, local peritonitis is very tender, and general peritonitis is but a few days of anxiety. There are two great principles in the treatment of acute peritonitis, viz.: (*a*) physiological rest; (*b*) anatomical rest.

Anatomical rest is sought by the patient. Pain forces him while resting to lie in such position that the muscles adjacent to the peritoneum are put at rest, with no action. The abdominal muscles are still, and especially the psoas are put at rest, by flexing the thigh on the abdomen. In short, the patient is glad to go to bed to secure anatomical rest—a quietude gained by lying on the back only with the skeletal and muscular system immobile.

Physiological rest, however, is of vital importance in acute peritonitis. Alonzo Clark realized it when he gave patients with peritonitis enough opium to make them blue and cause them to snore. The opium treatment of Clark will fit exactly when the patient is not to be operated upon. Fifteen years of special labor in gynecology and abdominal surgery has taught me the great-

essential to the morbid process at work that there should be any manifest change in the eye ground at this period. The degree of eventual blindness varies, but commonly it is complete or nearly so. In one or two instances recovery of normal vision was reported. In some of the cases seen at the very beginning a central scotoma seems to be the first change noted, rapidly going on to obliteration of the whole field. Quite a marked characteristic is a return of vision in some part of the field, before the stage of atrophy sets in, even in cases where total blindness has been the final result. In course of time changes of an atrophic character are noticed in the disk, increasing until the nerve head becomes white. The whiteness is of the kind that is usually seen in retrobulbar neuritis, and not that following papillitis, the outlines of the disk being usually clean, and the retinal vascularization not departing markedly from the normal. The time at which the atrophy begins to show itself seems to differ in the various cases reported. In one case (Raub) it was noticed as early as the fourth day, but it is usually more than a week after the blindness sets in that changes on the disk are to be noted.

The amount of the agent necessary to produce a noticeable toxic effect is probably a widely varying quantity. In some instances a large amount was undoubtedly ingested with no greater effects than in others where a relatively small dose was taken. In one of my cases it would seem that little more than a half-ounce of the alcohol was consumed. It is to be specially noted in this connection that the poison may reach the system through a number of agencies, some of which have been regarded heretofore as entirely innocent of any such toxic power.

Very recently a number of cases have been reported in which blindness with atrophy of the optic nerves has followed the ingestion of Jamaica ginger, essence of peppermint, and some other of the essences which are kept for household consumption. At first it was presumed that in these cases the cause of the blindness was the ginger or vanilla, etc., which was the principal constituent of the essence, associated, probably, with an idiosyncrasy. Particular prominence was first given to such cases by some reports from Baltimore by Dr. Hiram Woods, though Dr. A. Thomson, of Philadelphia, had reported one case as far back as 1897. There can be no doubt now that the blindness in these cases was caused by the methylic alcohol which had been used as a substitute for grain alcohol in the manufacture of these essences. Dr. Harlan, of Baltimore, who has seen a number of these cases, obtained specimens of the Jamaica ginger used and submitted them for analysis to Mr. Dunning, of the firm of Hynson & Dunning, of Baltimore. It was shown by the analysis that the alcohol used in the manufacture of these essences was composed of seventy-five per cent methylic and twenty-five per cent ethylic alcohol. A full account of the tests applied is given in Dr. Harlan's paper *(Oph. Record,* February, 1901), and they seem conclusive. The specimens of ginger used were all from one manufacturing firm, and I see by the papers that suits have been instituted by the victims against the guilty parties for damages.

Aside from these cases from Baltimore and vicinity there are others that have been reported in the secular press, especially in the prohibition districts of Maryland and West Virginia, including both blindness and death. While preparing this paper I read of a death from drinking wood alcohol in Roanoke, Va. Probably only a small proportion of these cases are reported in the public press, either lay or professional.

Essence of Jamaica ginger of the U. S. Ph. is strongly alcoholic, consisting of 100 Cc. of alcohol to 20 grammes of ginger. The other essences, such as peppermint, vanilla, etc., are perhaps not so strong, but are still very powerful, and all are used by dipsomaniacs, principally in places where alcohol in any ordinary form is not allowed to be sold, but where all kinds of essences are kept for sale in every country store. The cause of the substitution of wood for grain alcohol in the preparation of these essences is the greater cheapness of the former. The wholesale price of wood alcohol of 97-per-cent is about 75 cents a gallon, while that of 95-per-cent grain alcohol is $2.45. This difference is due, it should be stated, to the revenue tax on grain alcohol, which does not apply to the wood product. The absolute cost of the manufacture of wood alcohol is, I am told, really greater than that of grain alcohol. This great difference in the price is a temptation to the unscrupulous manufacturer which it is difficult to resist, especially should he not be aware of

the intense toxic effect of wood as compared with that of grain alcohol.

It is also to be noted that the poison may enter the system through avenues other than the stomach. In some cases reported by Patillo and Casey Wood the patients had not ingested any of the drug, but were only exposed to the fumes of the alcohol in an enclosed beer vat while using a shellac for which wood alcohol had been employed as a solvent. De Schweinitz also reports a case of a varnisher who was affected by the fumes of the varnish in which wood alcohol had been used as the menstruum. He had also used the alcohol as a cleanser to remove the varnish from his hands and arms. The patient stoutly denied that he had taken any of the agent into his stomach.*

It is a matter which seems to need explanation that these cases of wood alcohol poisoning should have come to our attention in such numbers only within the last three or four years. It is understood, of course, that when the medical mind is once directed toward any particular pathological condition, instances of its occurrence are immediately increased. Still it is rather remarkable that so pronounced a malady with such striking clinical features should have escaped the vigilant observation of so many astute clinicians until recently. Two explanations are possible: first, a more extensive use of the agent, or secondly, a change in the quality of the manufactured product. As regards the first it seems hardly possible that there has been any unusual sudden demand for wood alcohol, or the articles into the composition of which it enters, except, perhaps, unwittingly in localities under the local option law. Its use in the arts and for burning purposes has been very large ever since the imposition of the revenue tax on grain alcohol, which is now many years ago. In regard to the second it is possible that the alcohol itself may contain impurities of a dangerous kind not in that formerly made. In fact, we are by no means sure what the toxic agent really is. We are certain, at least, that the manner of its action is different from that of ethylic alcohol. According to de Schweinitz "amblyopia from acute alcoholism is rare. . . . In rabbits and dogs the writer has been unable to produce amblyopia with optic nerve lesions by inducing acute alcoholism."

The poisoning from methylic alcohol is very acute, while that from grain alcohol is always chronic, therefore there must be a toxic ingredient in the one which is not in the other. The chemical difference between the two forms of alcohol, so far as any analyses I have seen place it, consists in a varying amount of carbon and hydrogen; the formula for grain alcohol being C_2H_5HO, while that for wood alcohol is CH_3HO. It seems very probable, however, that there may be carried over by the process of distillation from the wood materials of a poisonous nature not given off by the grain. In the trade several grades of methyl alcohol are recognized, usually rated according to the percentage of alcohol they contain, the finest quality being known under the name of "Columbian spirits." That the fineness of the spirit is not a guarantee against its noxious effect seems shown by the fact that the "Columbian spirits" was the agent in several of the cases of toxemia reported. A closer chemical examination and experimentation in the future will no doubt inform us more clearly on these points on which light is so much needed for a proper scientific solution of the problem. Individual idiosyncrasy no doubt plays an important rôle, both as to the character and extent of the toxic effect. When several men have taken the drug at the same time, some have been affected with severe gastro-intestinal and nervous symptoms, some have become blind, and some have died. In the cases of fatal issue some are known to have become blind before death.

As a contribution to a further study of this serious affection I add the histories of three cases which have come under my own observation.

CASE I.—This was a case sent to me as an expert examiner from the Pension Bureau, and its importance from the point of view

*Since this paper has been written I have learned from the manager of the manufacturing firm which furnishes 90 per cent of all the wood alcohol used in this country (consuming about 1000 cords of wood daily), that in certain large hat manufactories where wood alcohol is the menstruum for dissolving the shellac necessary for "shaping" the hats, the atmosphere in which the workmen are thus employed is strongly impregnated with the wood alcohol which has evaporated. So dense is this saturation that the air is drawn off and the wood alcohol contained in it condensed and shipped back to the manufactory. The workmen living in this alcohol saturated air, as well as those engaged in manufacturing the alcohol itself, are often affected with a kind of intoxication, but so far no cases of blindness have come to light.

of a proper diagnosis has made it a *case célèbre* in the office. The man was thirty-two years old and had served during the Spanish-American war in Cuba, where he had some malarial trouble, for which he took from 18 to 27 grains of quinine daily for about four weeks. His vision was at that time in no way affected. He returned to Washington on the 9th of September, 1898, and in a few days was taken down with an attack of dysentery and pneumonia under the care of a homeopathic physician. From this he recovered in about three weeks. On October 6 he took, as he claims, by mistake, from two to four ounces of wood alcohol. There is no evidence that it was not retained. He has always, according to his own confession, been a rather constant drinker. Vision began to fail rapidly within forty-eight hours, and by the 10th he was totally blind. His contention before the Bureau was that his vision was beginning to fail before the ingestion of the alcohol, his claim being that the blindness was due to malarial poisoning and incident to the service. But the fact is undisputed that his total blindness did not occur until some time after the ingestion of the alcohol. The importance of the question of diagnosis is apparent when it is known that if the blindness were due to malaria contracted in the service he would be entitled to the full pension of $72 per month, whereas if it were due to the wood alcohol taken through his own carelessness it would debar him from any pension whatever. He was seen on October 10 by an oculist in this city, who found at that time total blindness with very rigid and "widely dilated pupils, and no disease of the interior of the eyes." The case was watched closely by this practitioner. Up to October 26 a little sight gradually returned in the right eye, principally in the peripheral field, but in the left there was never any perception of light. From October 26 the little sight in the right eye gradually faded, leaving the unfortunate man in total darkness.

When first seen by me on March 9, 1899, he was without light perception in any part of the visual field. The disks were white, without any marked excavation, but with fairly well defined edges, and no evidence of papillitis. The retinal vascularization did not seem to depart from what might be considered a normal condition, though a slight contraction in the caliber of the vessels was possible. The pupils were widely dilated and fixed. This condition has remained unchanged.

CASE II.—On November 25, 1899, I was asked by Dr. W. P. Carr to see a man in the wards of the Emergency Hospital on whom he had operated for hemorrhoids some two days before. I found a man of sixty-five with widely dilated pupils uninfluenced by light, and with not more vision than perception of movements. The operation under ether had not been a severe one, and he had recovered promptly from the anesthetic. He seemed perfectly well at that time, with the exception of his blindness. An examination with the ophthalmoscope, made in the presence of a class of students, revealed nothing that could account for the absence of vision. The disks were clearly defined in outline, of normal color, and the vessels of the retina showed no change in form or course that could be regarded as pathological. The urine was normal. The widely dilated and fixed pupils excluded hysteria, and the absence of all cerebral symptoms, aside from a natural sluggishness of intellect, removed all suspicion of any central structural lesion. He smoked only very moderately, though an old soldier. The treatment was entirely expectant. At the end of a week, a daily examination revealing no change in his condition, he was sent to his home, with the request that he report back to the clinic twice a week for examination as to his progress. This injunction, however, was not obeyed, and it was not until four weeks had passed that I saw him again. An ophthalmoscopic examination at that time revealed a perfectly white disk with sharp edges and a retinal vascularization different in no essential particular from that seen in the first examination. His vision had improved somewhat, so that he was now able to count fingers in the right at one meter, and in the left at three-fourths meter. His coordination was good. There was still nothing to be found which pointed clearly to the origin of his trouble.

The case remained in this condition of obscurity for some weeks, when suddenly one of those inspirations which come occasionally as a result of our unconscious cerebration suggested a closer examination as to wood alcohol, the clinical and pathological features being so closely a counterpart of those of the preceding case. At his

next visit to the clinic he was therefore put through a searching catechization as to what he had done just before leaving home for the hospital. It finally came to light as the result of this questioning that on the day before he left home for the hospital, having a pain in his stomach, he went to a druggist and asked him for some alcohol for it, he having understood that alcohol was good for pain in the stomach. The druggist told him that there were several kinds of alcohol, but that he did not have any on hand except the kind to "rub on," and sold him ten cents worth of this. He went home and rubbed some of it on, but this not proving satisfactory, he poured a tablespoonful in some water and swallowed it. The next morning but one—that is, within forty-eight hours, and the day he came to the hospital—he woke up with very much impaired vision. He was operated upon almost immediately, and the condition of his eyes was not noticed until some forty-eight hours after, when I first saw him and found him in the condition above described. Unfortunately he could not locate the drug store from which he obtained the drug, but there can be no doubt that it was wood alcohol, and that it was the cause of his blindness, since the history conforms so closely to that of typical cases of that form of toxemia. When last seen, on January 24, 1900, vision in R. was count-

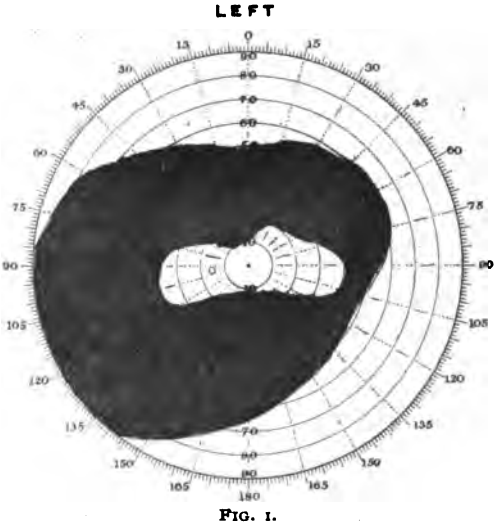

FIG. 1.

ing fingers at two meters; L. only movements of the hand. The visual fields were taken at this time and are shown in the accompanying diagrams (Figs. 1 and 2). The right is rather fair in extent, but the left is much contracted, to a horizontal oval form. There was no perception of color in the free areas. The ophthalmoscope showed no further change in the fundus.

CASE III.—On March 25, 1901, I saw, at the instance of his parish priest, F. K., aged

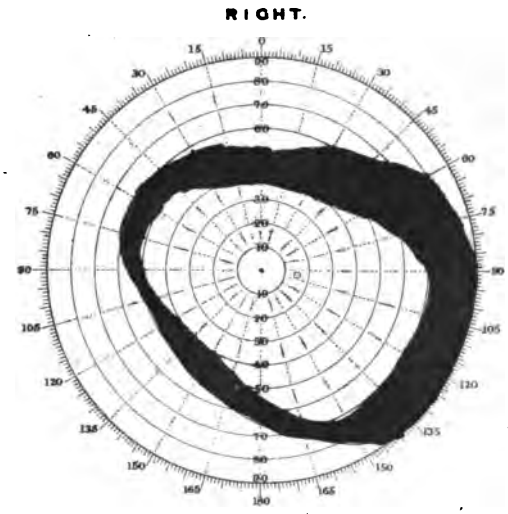

FIG. 2.

sixty-four, from Barnesville, Maryland, under the supposition that he was suffering from a blindness that could be relieved by an operation. He was a healthy looking, well nourished man, but had been a heavy drinker all his life. There was no vision left, except perception of movement in the outer fields, somewhat better in the left eye. The pupils were dilated almost *ad maximum* and were irresponsive to light. The media were clear. The disks were dead white, with fairly well defined outlines and no pathological excavations. The retinal vessels in size and number did not depart from what might be considered a normal condition. There were, however, a number of small yellowish dots scattered over the retinæ of both eyes, especially above and toward the macula lutea. There were also a few close to the macula itself. The history he gave was that up to three years ago he saw perfectly well, when, being on one of his periodical sprees, he found himself in a prohibition community and unable to get spirituous liquor of any kind to drink. Being thus debarred from his customary stimulus he drank a quantity—he does not remember how much, but "quite a lot"—of essence of Jamaica ginger. When he recovered from his spree he found that he was totally blind, and has remained so ever since.

Our knowledge of the pathology of this form of toxemia is still in an unsettled condition. In fact, in regard to the pathology of all forms of optic toxemia we are just now in a state of doubt, or transition from former beliefs. Not long ago it was generally accepted that in quinine and chronic alcoholic amblyopia—types of this form of disease—there was a retrobulbar neuritis more or less localized, which in the cicatricial contraction of the concluding stage made pressure upon the nerve fibers and caused their atrophy. This atrophy, descending along the fibers affected, made itself apparent in the course of time at the optic nerve entrance. At any rate, it was thought that the effects of the poison were expended primarily on the nerve trunk. Now while this contention cannot perhaps be wholly abandoned for some kinds of toxic agents, the experiments of Holden (1899) and others have directed attention to the retina, and especially the ganglion cells, as the seat of the primary lesion, at least for the action of quinine (though probably through a disordered vasomotor system). This change in the retinal cells affects the nerve fibers, a state of atrophy follows, and this progresses backward to the optic nerve entrance, where it becomes apparent as a white disk, thus in a measure reversing the process of the retrobulbar neuritis theory. Holden has made a few experiments with methyl alcohol on dogs, and in one he found conditions of the ganglion cells similar to those in quinine poisoning. Birsch-Hirschfield (1901) has made extensive experiments with methyl alcohol on rabbits and chickens, with the result that he invariably found degeneration of the ganglion and bipolar cells of the retina. Changes in the optic nerve fibers in the trunk of the nerve he was not able to demonstrate, except in one instance in a rabbit, and that was very limited in extent. It should be said, however, that no very great length of time—only three or four weeks—had elapsed between the date of poisoning and the examination for the pathological changes. There was never at any time any changes that could be considered pathological in the ophthalmoscopical appearances. In man at the end of three or four weeks there are always evidences of atrophy of the disk. It is still a question as to how far we may accept the results of experiments on animals as applicable to man. Up to date no results of the examination of a case of methyl alcohol poisoning in man have been published. It is pretty certain, however, that the clinical manifestations of this form of toxemia are not the same in man and in animals. These features in man fulfil all the indications for what we have hitherto looked upon as retrobulbar neuritis. It is true that in some cases, probably a majority, there is at the beginning no appearance in the disk or vessels which could not be considered as normal, yet in others there are alterations which might be held to be pathological, though never advancing so far as to be classed as papillitis. The theory of the primary lesion being in the retinal cells is very fascinating, and if it can be substantiated would be perhaps the most satisfactory solution of the phenomena pertaining to all the optic toxemias. Several features can, it seems to me, be satisfactorily accounted for only by the localized neuritis theory, principal of which is the return of some vision in some part of the visual field, either temporarily or more or less permanently. The degeneration of the retinal cells could hardly be of such a character as to allow of this fluctuation in function, whereas a varying pressure on the nerve trunk from inflammation could readily account for it. Hotz and some others are of this opinion also, and the attempt of Birsch-Hirschfield to explain it away I do not think very satisfying. A full discussion of these points, on both sides of which much remains to be learned and a great deal could be said, would lead us beyond the special scope of this paper.

As regards the therapeutics of the affection, so far nothing has been found that will either stop the march of the disease or ward off its inevitable results. If a poisonous amount of wood alcohol has been taken we must expect a blindness, more or less complete. The only means then left to us to meet such a calamity is to prevent, if we can, the ingestion of the poison.

As the matter now stands, wood alcohol is an article of commerce, purchasable in any quantity by any one who wishes to buy, and with nothing to indicate that, in its way, it is as dangerous as any of the recognized virulent poisons. It is consumed now largely in the handicrafts as a solvent for varnishes and shellacs, and in fact for all the purposes for which ethyl alcohol is

employed. It is used for burning in alcohol lamps, and for external applications as a substitute for ethyl alcohol, and has been used, as we have seen, in the manufacture of the essences which are consumed so largely in every household. Its cheapness and the fact that in its purified form it is devoid of disagreeable taste and odor render it additionally dangerous, because it is within the reach of many who would not or could not buy grain alcohol. In other words, the country is flooded with a poison dangerous to vision and even life itself under various and entirely unsuspected forms.

In our capacities as conservers of the public health it seems to me our duty plainly points to the agitation of this question until our authorities are awakened to the necessity for protecting the community against the ravages of such a subtle foe. The people themselves should be informed through every possible channel of the highly dangerous nature of the drug when taken internally. It should be placed upon the list of poisons, and when sold, labeled as such.

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*THE TREATMENT OF LOCOMOTOR ATAXIA, WITH SPECIAL REFERENCE TO THE TREATMENT BY EDUCATIONAL EXERCISES.**

By John W. Rhein, M.D.

The general practitioner inclines (and not without good reason) to view patients suffering from locomotor ataxia as hopeless and unsatisfactory ones to treat. A general impression for a long time prevailed that there was no relief from the symptoms which the victim of this disease presented. The severe pain, the incoordination, the failure of the bladder and rectum to perform their proper functions, all seem such hopeless symptoms that the physician in general practice is rightly discouraged by the outlook. The treatment I shall describe so radically upsets the routine life of the patient that he is often with great difficulty persuaded of the expediency of the measures prescribed.

Ataxia is a disease requiring a special régime which must be carried out with great persistence. It will be found necessary in dealing with these cases to speak frankly and honestly about the disease, the prognosis, the results of treatment, in order to control the patients and induce them to undergo the treatment. The tabetic should early learn to be philosophical about his disease, and should be told exactly what to expect. He is more readily governed also in this way as to the future regulation of his life. He acquires constant surveillance by his medical adviser, who should watch closely for any deterioration in general health or any tendency to progress in the disease itself. Few patients will continue routine treatment month after month without the careful oversight and direction of a physician, and it is just in this particular that the greatest difficulty exists and where the physician must exercise constant control. Relaxation in treatment is always followed by a retrogression in the disease. The symptoms from which a tabetic suffers most, and for which he seeks relief, are the difficulty in locomotion; the sharp pains; the constipation; involuntary urination; cystitis; and the various crises of which attacks of spasmodic cough with husky voice, severe pain in the rectum, bladder, or stomach, are the most frequent. Patients complain greatly of the various sensory phenomena so often met in locomotor ataxia. Of these symptoms, the most prominent are the numbness in the hands or legs and the girdle pains.

Before discussing the general plan of treatment, let me first state what may be expected of the method about to be elucidated. What hope can we give the patient who comes to us seeking relief? It goes without saying that the amount of benefit derived must depend upon the stage to which the disease has progressed. In early cases in which the incoordination is slight, the pain insignificant, and the general health but little reduced, the treatment is always encouraging. Even when the ataxia is so great as to require support in walking, or even when locomotion is impossible (if this is not due to paralysis but simply incoordination), most hopeful results may be obtained. The less hopeful cases are those which have gone on to real paralysis due to involvement of the motor columns, though even in such cases Frenkel claims good results. In one of my cases of combined column disease with much ataxia, and a marked degree of muscular weakness, due to involvement of the motor cord, the inco-

*Read October 23, 1901.

ordination practically disappeared under the treatment to be described, while the tottering gait which remained was due alone to muscular weakness. I have repeatedly observed patients who almost fall into my office, or who are practically carried in by their friends, so great was the ataxia, under this treatment walk unassisted so well that only the most practiced observer could discover much amiss. I have seen pains lessen in severity, and their frequency greatly diminished, as a result of the improvement in general health. I have found patients to gain remarkably in weight, general strength, and in quality of blood, so that the general *bien-etre* was markedly elevated.

The patients gain courage, hope, and become happier and more content. They express themselves as walking more firmly, of suffering less, and appear satisfied with the improvement. Ataxics who have worked up to their limit, unable longer to get about from weakness and incoordination, have gone back to their duties with renewed hope and strength. I am accustomed to say to these patients applying for treatment that they have an incurable disease; that the treatment will in all probability stop its progress; that their walk will be steadier; that they will grow stronger and stouter, will suffer less from pains, and will in some measure be relieved of the severity of the subjective symptoms. While this is broadly what may be said to them, of course individual cases require some modification in this statement.

The plan of treatment proposed is first to bring the general health of the patient up to its maximum degree of improvement. This is accomplished by absolute rest in bed, combined with massage, electricity, tonics, and overfeeding. Later, after the patient has gotten about, the special exercises designed to reeducate the muscles are prescribed, the patient following at the same time a partial-rest schedule.

A lukewarm to a warm bath is given in the morning before breakfast, followed first by a brisk rub with coarse towels, and then a gentle superficial massage with 50-percent alcohol. This not only gives the patient a sense of well-being, but is also instrumental in regulating the digestive functions and in stimulating the general circulation. The bath should be given by an assistant, and a reaction should be certainly established. When the bath is taken unassisted, it is apt more often to do harm than good, as the expense of energy required tends to prevent reaction, besides being exhausting. It has been definitely proven that any exercise before breakfast, soon after awakening, has always an injurious effect, even among robust subjects. This has been studied carefully in the German army, where no exercise is permitted before breakfast. Massage is ordered once or twice a day. As to the character of the massage, I strongly advise general heavy movements, with especial attention to the back and legs. In most cases who can afford it I advise the slowly interrupted faradic current to the principal motor points for an hour. This makes the patient "feel good," and acts as a passive form of exercise, while at the same time it serves to stimulate the peripheral nerves. No educational or Swedish movements are given for some time. I like first to give the average patient a month of rest before instituting this part of the treatment.

The diet consists of the usual nourishing foods. Large quantities of milk are ordered, and the patient is encouraged to eat abundantly in the hope to put on weight.

I always study the blood carefully before instituting treatment, and often during its progress, as I can thus more intelligently follow the improvement made.

The time spent in bed varies according to the rapidity with which the patient takes on fat. It is best to increase the weight at least ten pounds if possible before relaxing the absolute rest. With very thin subjects who are naturally slight, this is often impossible, but there is always some gain. At the end of a month or six weeks the patient is permitted to get up very gradually, just as in the rest cure, and by degrees he is permitted to remain up longer, increasing the time from day to day. The amount of exercises, simply devoted to improving the muscular condition, should be limited, however, and governed entirely by the strength of the patient. Frenkel advises against any form of gymnastics during the treatment.

The educational movements are now begun. This phase of the treatment has for its object the improvement of the incoordination, and is based upon a plan of reeducating the muscles. This is accomplished by practicing repeatedly certain movements, which are graduated from simple to complicated.

It was Frenkel[6] who in 1890 first de-

scribed this new method, accepting the theory held by Leyden and Goldscheider that incoordination was due to loss of sensation.

It was suggested to him by the fact that a patient was able to perform certain acts, such as touching the nose with the index-finger, the eyes being closed, with greater precision, after a certain amount of practice. He suggested three different forms of movements: (1) Simple muscle movements; (2) simple coordinated movements; (3) complicated coordinated movements; all three series of movements to be performed at each séance.

At first this system received but little attention, and it has only been in the last few years that his method has been generally used and elaborated. The system has been variously termed—by Frenkel,[10] "Compensatory Uebungs Therapie;" by Raymond,[22] method de "Reëducation des movements;" by Hirschburg,[15] Gymnastique raisonnée (because the patient must understand "le sens" of the movements); by Leyden,[19] compensatory treatment. The good results are explained as follows: Nerve tissue possesses the quality of retaining impressions made upon it, and these grow stronger with the repetition of the impression, the change thus caused becoming permanent. This reeducation of the nerves supplying the muscles affected is necessary because the subjects have practically forgotten which muscles are required in performing certain movements. It is essential that the patient shall possess a certain degree of intelligence, patience, and power of concentration; in fact, the prognosis depends upon these qualities. In 1895 Frenkel[7] described the application of this method directed to the education of the hands, by means of drawing various shaped lines, placing pegs in holes in a board made for their reception, and similar exercises. This method was also applied by Hirschburg[14] in 1893 to the correction of incoordination in the hands. Again, in 1896, Hirschburg[15] added to the literature of the subject of the reeducation of the muscles in ataxics, and called attention to the modification in the perception of the sense of fatigue. In the first stage of the disease fatigue is felt soon after exercise, and out of proportion to the amount of muscular force used. Later, an anesthesia of this sense develops, and after long-continued exercise the patient does not experience fatigue. In a third class of cases muscular lameness comes on the next day after exercise, lasting twenty-four to forty-eight hours. These facts must be remembered in estimating the amount of exercise to be taken. Frenkel[8] described a case in which the sense of fatigue was so reduced that the patient was able to hold out his arm for twenty-five minutes without feeling fatigued in the least, and I have repeatedly seen patients who were able to go about all day long, resting little or not at all, and using up a great deal of muscular force without feeling tired. Frenkel[12] has called attention to the fact that the muscular system is generally relaxed in this disease, so that the limbs are capable of being placed in positions commonly attributed to contortionists, a condition spoken of by Hirschburg[16] as hypotonus of the muscle. This condition has, in my experience, greatly improved under rest, massage, and application of educating movements, as advised in this paper. Frenkel,[10] while acknowledging the great benefit of baths in the treatment of ataxics, advises against combining them with this treatment.

Improvement goes on from the first, with varying rapidity, depending upon the persistence of the exercises, the attention paid to their performance, the general health, and the degree of ataxia. Maurice Faure[9] has found improvement to continue up to a year, though the maximum improvement is usually reached at the end of three months. He suggests in order to retain the good results to devote two periods yearly to teaching the patient how to perform the educational movements. He believes that a favorable prognosis may be given in cases in which the symptoms have remained stationary for a certain period. A great many exercises are described by Goldscheider[18] in his book entitled Anleitung zur Uebungs-Behandlung der Ataxie, 1899. This treatment is more completely set forth in this work than any other on the subject. He recommends the following movements, which are especially useful in training the legs to walk properly. The patient lying on his back in bed, the thigh is flexed on the abdomen while the leg goes through an exaggerated stepping movement. One leg is thus exercised, and later the movement is practiced with both legs alternately. A similar exercise is done while the patient sits in a chair. They are done to counting, and

care is observed to prevent any irregularity in the movements in the legs, such as deviating to one or the other side, or any tendency to jerky movements.

Goldscheider proposes an apparatus for advanced cases, which supports the body under the arms, and is supplied with four wheels in such a manner as to move readily as the patient walks.

To describe all the different exercises would make this paper too long. I shall describe, however, a sufficient number of the most important ones to give some idea of the method.

The patient walks heel and toe along straight lines drawn on bare floors; later, curved lines, spiral lines, etc. A very useful and difficult exercise is to raise the leg as high as possible, flexing at the knee, then extend it forward, bringing the toe down first to a point a pace in front of the other foot, and to continue progressing in this fashion. This is done slowly, regularly, and preferably by counting one to four in lifting, and one to four again in lowering the leg. The patient is taught to stand with feet apart, eyes open, then closed, later with the feet together. The patient takes one step forward, then the foot is brought to the original position. Later two to four paces are taken.

As the incoordination improves more difficult tasks are given. For instance, the patient balances himself on one foot, and with the other touches designated places on a stool with the toe, bringing the foot to the original position, after touching each one of the places pointed out. In the sitting position with a chair placed in front of him, the patient touches with alternate toes various parts of the rounds of the chair in front. These movements are all done very slowly, with great concentration and to counting, the last assisting greatly in keeping the attention of the patient. The patient rises slowly from the chair without assisting himself by his hands, then reseats himself.

The patient is taught to walk over obstacles placed on the floor, such as blocks of wood, which may be arranged in lines, straight, curved, and in various directions. Going up and down stairs slowly and carefully is a very excellent exercise.

Those who desire a greater detailed account of the various movements will find them described by Dana *(Post-Graduate,* 1896, ii, p. 275), who has published an excellent schedule, based more or less upon those of Frenkel and Hirschburg.

In a later paper I mean to publish a list of movements which I have found most useful in my own experience.

The exercises should be done two and three times daily, and it is preferable that the physician should be present, certainly at first, and especially when the fatigue sense is lowered. The results are permanent if the general health remains good, and the exercises are persisted in. As contraindications to this treatment, Hirschburg[15] claims those cases in which symptoms develop under two years, when the general state of health is poor, or when the articulations are affected.

Raichline[22] considers those cases with slow progress favorable. He states that sensation should not be absolutely lost, that arthropathies and spontaneous fractures should not be present, that those cases of rapid progress with symptoms of irritation contraindicate the treatment. He points out the importance of the degree of intelligence of the patient and the view of the case taken by him. Raymond[23] gives obesity and drug habits, Grasset[18] fragile bones and heart lesions, as contraindications. Blindness is also a contraindication, for vision is essential in the performance of the exercises. The patient must be intelligent and capable of concentration. Caution must be observed in those cases showing symptoms of irritation of the cord or roots, the so-called meningeal type of the disease.

The treatment of tabes by mechanical means has been practiced in various ways since Langenbuch (1878) stretched the nerves in a case of supposed ataxia. In 1883 Motschutkawski proposed suspension, later Bonuzzi and Blandel stretched the body by placing it in certain positions; then Hessing proposed plaster-of-Paris jackets to stretch the spine.

It is very important to see that the digestive functions are properly attended to. Torpid liver alone in a great many cases causes outbreaks of the lancinating pains. I have seen some remakable results with calomel in such instances, the pains disappearing after the administration of this drug. A coated tongue, or constipation, also frequently induces the pains, which cease after these have been corrected.

The spasmodic cough which is so fre-

quently encountered is often very difficult to relieve. These attacks yield, though not always, to combinations of antipyrin or acetanilid, cannabis indica, and codeine. When they are very intense and prolonged, amyl nitrite and morphine alone are effective. The rectal crises when present are very annoying and persistent, and offer great resistance to treatment. The above combination may be used here with relief. I have in several cases most effectually relieved this symptom by dilating the rectum, either with a speculum, a probang, or sometimes simply by the use of the fingers. It is amazing what relief follows this measure.

The bladder needs attention in many cases. It is very important to be sure that there is no residual urine in the bladder in those cases suffering from incontinence or retention. The bladder should be frequently catheterized and washed if there is indication of cystitis. These measures also are of great assistance in the treatment of the bladder crisis.

The pains of the ataxic are often agonizing and persistent, baffling all attempts to relieve them, and often drive one finally to the administration of morphine, which, however, should be the *dernier ressort*. A hot bath, followed by wrapping the affected parts in warm blankets, is very effective, associated in more persistent cases with such a combination as I advised above for the spasmodic cough. The pains are sometimes neurasthenic in character, when the general treatment prescribed has a beneficial influence upon them. Sometimes the pains are increased by the movements, requiring the greatest caution in the management of the case.

Beer[2] refers to the psychical aspect of the pains, and their relation to the general nutrition. He believes that the pain in the majority of cases is peripheral, and claims that the painful condition of the joints is due to lack of sensory control, increased innervation of the joint resulting. He proposes a light plaster jacket for the body and a bandage for the joints, the former not a Hessing jacket, having for its object the stretching of the spinal cord, but one simply to prevent motion of the spine. He advises against the use of the cane, believing that ataxics should not depend upon external support. Erb suggests among the usual measures for the relief of pain, blisters and cautery points.

As to the use of potassium iodide, it has been in my hands of very little value in the general run of patients. I have failed to see any positive results from its administration, except in selected cases. I believe it has no use in those cases of tabes with specific history, in which the treatment has been thorough and satisfactory. If, however, there has been any flaw in the treatment of the original specific attack, I always give a thorough course of iodide. It has had such a deleterious effect on the digestion, in those cases in which I have previously as a routine ordered it, that I avoid its use as much as possible. It is not indicated in the old cases.

Leyden and Goldscheider[19] advise the use of mercury only where the diagnosis lies between tabes and specific cerebrospinal disease in such cases in which, besides symptoms of tabes, those of cerebral spinal syphilis exist. Erb[4] believes specific treatment advisable in (1) all early cases with symptoms of tabes in which the syphilitic symptoms are not yet very remote; (2) in cases in which the "floride" symptoms are not yet present, or symptoms of cerebral or meningeal syphilis complicate; (3) cases in which insufficient specific treatment has been instituted.

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WHAT IS THE BEST WAY OF PRESCRIBING CALOMEL AS A PURGATIVE.

In the *New York Medical Journal* of July 27, 1901, FLOERSHEIM tells us that for infants (children under a year old) who are suffering from constipation, an eighth of a grain of calomel should be administered every hour for six hours, then every two hours. If this fails to act, half a wineglass of citrate of magnesium is administered and an enema of warm soap-suds given. In diarrhea, a tenth of a grain of calomel, with half a grain of extract of krameria and half a grain of Dover's powder every two or three hours.

For children from one to six years old: In ordinary constipation, a quarter of a grain of calomel every hour for five hours, then every two hours. If no movement is obtained after the eighth dose, a wineglass of citrate of magnesium is administered; also an enema is given if necessary. In obstinate constipation, calomel, half a grain, combined with a tenth of a grain of extract of belladonna, every hour for three doses, then to be given every two hours, and after the fifth dose two wineglasses of citrate of magnesium are administered. If no movement is obtained in three hours, a high enema is then given which contains warm soap-suds, olive oil, oil of turpentine, and castor oil. In diarrhea a quarter of a grain of calomel, with from a half to two grains of extract of krameria, and a quarter of a grain of Dover's powder, every one to three hours.

For children from six to fourteen years old: In constipation, calomel, a quarter to half or one grain every one or two hours, or combined with a tenth of a grain of extract of belladonna. In obstinate constipation, cascarin, half to one and a half grains, may be added, or a tenth of a grain of resin of podophyllum; also an enema should be given if it is necessary. If the constipation is of long standing, a better effect of the drug is obtained if the enema is given first. In diarrhea, an eighth of a grain of calomel with small doses of bismuth subnitrate, three grains of extract of krameria, and a grain of Dover's powder, every two or three hours.

For youths and adults: In constipation, a quarter to a grain of calomel with aloin, strychnine sulphate, and extract of belladonna, every three hours. If hemorrhoids are present, omit the aloin and substitute cascarin. In obstinate constipation, increase the dose of calomel to two to three grains, and also add resin of podophyllum. An enema and massage of the abdomen may also be required. For diarrhea, calomel, an eighth of a grain, combined with bismuth subnitrate and extract of krameria, every two to three hours.

Whenever a rapid and a large movement is required, a large single dose of calomel gives the best results.

EUQUININE.

In *Nouveaux Remèdes*, vol. xvii, No. 15, 1901, LAUMONIER writes concerning one of the new antipyretics and antiperiodics, namely, euquinine. After describing its chemical constitution, he states that it is well borne by the stomach, does not cause vomiting or any dyspeptic symptom, nor does it produce cerebral symptoms and roaring in the ears. He claims that it possesses very distinct antipyretic and antiperiodic influences, these effects appearing shortly after the administration of the drug. It is also asserted that the administration of this drug for long periods results in the improvement of the blood in malarial fever, there being an increase in the red cells, and the percentage of hemoglobin. It begins to be eliminated in the urine about half an hour after its ingestion, and the maximum is reached in about seven hours, and is over in forty-eight hours. The ordinary dose of it as an antiperiodic is 16 to 24 grains, and it seems to act well in all forms of intermittent fevers. One of its advantages is the fact that it is devoid of taste, and can be administered in milk or broth or other vehicles with ease. It is particularly advantageous in the treatment of fevers in children. Like quinine, it is also claimed to be of value in whooping-cough.

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Leading Articles.

AVOIDABLE COMPLICATIONS FOLLOWING THE USE OF ANESTHETICS.

It has been claimed by those who have advocated the use of chloroform as an anesthetic to the exclusion of ether that the latter drug produced a larger number of post-operative complications, and that while chloroform admittedly caused death more frequently upon the operating-table, ether more commonly ended the patient's life by producing pneumonia, bronchitis, or serious renal conditions. It is probably true that ether, because of its more irritating properties, when used freely, is capable of producing more irritation of the respiratory tract than chloroform, and for this reason respiratory complications after its use not infrequently occur. It is not just, however, to give the credit of these complications to ether unless we first exclude a number of causes which may produce pulmonary changes, and for which ether is only indirectly responsible. Many years ago, in the original columns of the THERAPEUTIC GAZETTE, the writer of this editorial published a paper in which he showed that during the prolonged administration of ether there was always more or less fall in the body temperature, and he ascribed a number of the complications which followed etherization more to the lowering of the bodily temperature than to a direct action of the ether itself. He also pointed out a fact which since then many surgeons have recognized, namely, that the proper time to give the patient external heat is during the operation and not after it, for the purpose of maintaining the body temperature at its normal point. Through all these years the writer has constantly impressed upon his students the vital importance of preventing this loss of heat under ether so far as possible, for he is convinced that if the body temperature is properly maintained, renal, pulmonary, and gastro-intestinal disturbances will often be avoided.

More recently attention has been called by a number of medical and surgical writers to the fact that during all forms of general anesthetization there is a possibility of septic infection of the lungs taking place through the drawing into the bronchial tubes of particles of food, mucus, or infected saliva, and it has been found that many of the cases of pulmonary difficulty which have arisen after the use of ether and chloroform are dependent upon that form of infection which has just been named. These accidents can be largely avoided by insisting that the patient shall use some antiseptic tooth-paste when cleaning his teeth, night and morning, for several days prior to the operation, and in the rinsing out of the mouth with some mild antiseptic lotion immediately before the operation commences. As ether is more apt to produce a profuse flow of saliva and mucus than is chloroform, this drug is also more apt to result in inhalation pneumonia. But this profuse secretion can be to a very large extent controlled if the physician sees to it that the ether is not pushed too rapidly in the early stages of its administration, and also if he administers before it is given 1-250 of a grain of atropine, which will not only prevent excessive nasal and oral secretion, but also act as a good vasomotor stimulant during the maintenance of the etherization.

When we remember that the development of anesthetization for surgical purposes also results in the production of anesthesia of those sensory nerves which guard the glottic opening, and when we also consider how intensely acute these nerves are, illustrating how important nature regards the exclusion of foreign bodies from the larynx, it is extraordinary that pulmonary difficulties do not arise more frequently as the result of these nerves being so obtunded that they cannot protect the trachea from invasion.

Still another pulmonary difficulty which is often responsible for grave complications, and for which blame is unjustly given to the drug, is the entrance into the pulmonary blood-vessels of emboli which are carried to the lungs from the seat of operation, during amputations, or during operations for irreducible hernia, and in similar conditions in which are opened large vessels, which are oftentimes the seat of thrombosis. Pulmonary infarctions are readily formed, and it would seem possible for pulmonary abscess to result in this manner, or for a sudden death to take place because of this accident. Indeed, it is probable that in a number of instances where sudden death has occurred under an anesthetic and the drug has been blamed for the accident, a pulmonary, cardiac, or cerebral embolus has really been the immediate cause of dissolution.

These subjects are of very great importance both theoretically and practically. They cannot be too carefully studied by a physician. Every case of sudden death under an anesthetic, or of death occurring within a few days after the anesthetic has been given, should if possible be subjected to a post-mortem examination in order that the true cause of the accident may be discovered. It is only by such means that we can determine the real lethal properties of the various anesthetics, and the frequency with which accidents occur for which the operation and not the anesthetic is responsible. Very recently a most interesting and thorough discussion of this whole subject has appeared from the pen of Dr. Joseph C. Bloodgood, one of the surgeons to the Johns Hopkins Hospital, who contributes an article, based upon his personal experience and upon careful examination of the literature, to *Progressive Medicine* for December, 1901.

THE LIMITATIONS OF VERATRUM VIRIDE IN PNEUMONIA.

In the last issue of the THERAPEUTIC GAZETTE we published in the original columns an article in which the employment of veratrum viride in the treatment of pneumonia is strongly advocated. The article was published not because the views expressed in it are in entire accord with those of the editor, but because it is our wish to present from time to time the personal views of physicians of experience even if they advocate measures which do not appeal to other members of the profession with equal force. We think that in all probability veratrum viride is too little employed by many physicians, but we fear that its common employment, as is advocated in the article to which we refer, will not always produce the results which are desired. In the first place, pneumonia is a term which is loosely applied to a number of conditions which appear in the lung. Sometimes it is employed to mean croupous pneumonia, a disease which depends upon an acute infection by the micrococcus lanceolatus. In other instances so-called catarrhal pneumonia or bronchopneumonia is so described. And again, consolidation of the lung occurring as the result of tubercular infection is given this name. Not only is this true, but croupous pneumonia presents very various manifestations, depending upon the condition of the system and the peculiarities of the patient who is infected. In one patient nervous symptoms predominate, and the signs of meningitis may be so apparent as to divert the physician's attention from the lung to the brain. In still another instance the changes which take place in the blood and circulatory system seem more noteworthy than those which occur in the pulmonary tissues; and in a third class of patients we find renal disorders which are more active in producing a fatal result than the lesion in the lung. So, too, the reaction of the system of a feeble patient at the onset of this disease is quite different from that of the strong, athletic individual.

It is therefore evident that veratrum viride cannot be employed in every form of pneumonia, nor in every case of any one form of pneumonia, but that the patient must be carefully studied if the use of the drug is to be followed by beneficial results. Certain it is that in the presence of pneumonia depending upon an acute tubercular

infection, and in catarrhal pneumonia as a rule, the employment of veratrum viride is justifiable, in that the patient should not be depressed any further by the use of a sedative drug. In cases of croupous pneumonia, occurring in persons with a feeble circulation or in persons of advanced years with degenerated myocardium, its use is equally contraindicated. Not only is this true, but it is also a fact that the conditions of the circulatory system which exist in the early stages of acute inflammatory processes of the lung are quite different from those which occur in the later stages of these maladies, and while we believe that veratrum viride can sometimes be employed with advantage in the very earliest stages of croupous pneumonia, we also firmly believe that after this disease is well developen, as it usually is when the physician is called to the patient, the drug should not be employed, since at this time the heart is apt to be depressed by the toxemia of the disease, while the complete development of the infection and the consolidation of the lung interfere with the passage of blood from the right to the left side of the heart. Where the circulation is full and bounding, the heart overacting, both as to speed and force, and the patient's face is flushed, we can readily understand that the moderate use of veratrum viride may be of value. Unless these conditions exist, we think it should be used with caution or not at all in the treatment of pulmonary affections.

At the present time there exists in the medical profession two schools of thought in regard to this subject: one which highly recommends veratrum viride in pneumonia without further definite statements as to what conditions in pneumonia call for its employment, and another in which physicians bitterly oppose the employment of this drug in any pulmonary affection, and particularly in croupous pneumonia. As with many other subjects of debate, in and out of the medical profession, there can be no doubt that a little more consideration on the part of both sides would result in a better application of this remedy. Those who advocate it strongly are perhaps too enthusiastic in their recommendation for its universal employment, and those who speak of it solely in the spirit of antagonism would perhaps be better physicians if they were more liberal in their views concerning it.

A MEANS OF DIMINISHING THE TOXIC ACTION OF COCAINE WHEN USED AS A LOCAL ANESTHETIC.

Cocaine cannot be employed in a certain number of surgical cases because of its influence as a toxic agent upon the general economy after it is absorbed into the circulation. If used freely, it must be in very dilute solutions, and then sometimes fails to produce the required anesthesia. Some experiments which have recently been made by Hoelscher have shown that the danger of poisoning from cocaine when injected into a limb is greatly increased if the Esmarch bandage, which controls the hemorrhage, is removed immediately after the operation. If, on the other hand, this bandage is allowed to remain upon the limb for some little time, and then is removed, toxic symptoms do not occur. This failure in the development of toxemia depends not upon the fact that the cocaine leaks out of the stump through the wound, but more upon the influence which is exercised upon this vegetable alkaloid by the tissues themselves.

Within the last few years a number of experiments have been made upon animals, with different objects in view, which nevertheless support Hoelscher's results. Thus, Von Czyhlarz and Donath have concluded as the result of their experiments that the tissues of the body have the power of rendering a poison, notably strychnine, inactive by causing its fixation in the tissues or perhaps by destroying it locally, provided its rapid absorption and transference elsewhere is not speedily accomplished. It is true that these conclusions have been combated by Meltzer and Langmann, who think that the prolonged application of the ligature produces changes in the tissues which prevent them from absorbing the drug, but certain it is that other experiments have shown that the tissues do possess a destructive power over vegetable alkaloids.

GREEN OR BLUE URINE AND ITS MOST FREQUENT CAUSE.

A number of months ago we called attention in the editorial pages of the THERAPEUTIC GAZETTE to the fact that methylene blue could be given hypodermically with the object on the part of the phy-

sician of determining the activity of the renal epithelium in the elimination of impurities from the body. It has been proved beyond all doubt that where considerable renal disease exists, the elimination of methylene blue is distinctly retarded, so that instead of appearing in the urine within an hour or two after it is swallowed, it sometimes does not appear for five or six hours.

Our object in this editorial is, however, not so much to speak of the use of methylene blue as a diagnostic agent as it is to call attention to the fact that sometimes patients have brought urine to physicians which was green or blue in color. In practically every instance where this occurs the physician can rest assured that methylene blue has been swallowed. It is true that large quantities of biliverdin may sometimes give the urine a greenish hue, that poisonous doses of salicylic acid may do likewise, and that when large doses of carbolic acid are taken a smoky urine is developed. But in none of these instances is the urine so typically green or blue as when methylene blue is administered. It is possible that a few drugs may produce a somewhat similar color; and we learn from an article by Parkes Weber, of England, published in the London *Lancet,* that Zülzer has recorded the case of a boy who was poisoned after eating the leaves of *Cytisus Alpinus,* and who passed a large quantity of urine of a grass-green color. These instances are, however, exceedingly rare, and Weber, who had presented to him a number of specimens of green or blue urine, found, as we have said, that in practically every instance methylene blue was the cause of its discoloration. This led him to the investigation of the possible means by which methylene blue had entered the body, for the patients in the majority of instances denied having swallowed any such substance. As a result he found that in nearly every instance the patient had eaten candy which was colored with methylene blue. In one instance a child six years old repeatedly passed greenish urine during a period of eight weeks, and it was found he had been occasionally eating purple-colored sweets which were proved to be stained with this anilin dye. So far as Weber has been able to discover, fuchsin, which was at one time largely employed in renal affections, and which quickly reddens the urine, is rarely employed for coloring sweets. An investigation of a number of other candies showed that discoloration of the urine with one color or another from the ingestion of anilin dyes with the sweets is by no means rare.

SOME AUTHORITATIVE OPINIONS ON THE TREATMENT OF ACUTE GONORRHEA.

The practicing physician will find in current literature so many references to methods that are advocated as highly efficacious in aborting acute gonorrhea, in shortening its course, or in lessening its complications, that he may well feel dissatisfied with his own results in the treatment of the average case. He will find such cases lasting from six to ten weeks, with acute epididymitis as an occasional complication, painful nocturnal erections fairly common, and exceptionally a discharge persisting for months.

It was for the purpose of determining whether or not those most widely experienced and most skilled in managing gonorrhea have adopted a means of treatment differing materially from that ordered by the general practitioner, that the following questions were sent out:

1. Do you believe in the abortive treatment of gonorrhea? Roughly speaking, in what percentage of cases can the disease be aborted? What abortive treatment do you advise? When the abortive treatment is successful, in what time is complete cure accomplished? If unsuccessful, what influence has the treatment on the subsequent course of the case?
2. What conditions lead you either to adopt or to reject abortive treatment?
3. What local treatment do you employ for the cure of gonorrhea when either the abortive treatment has failed or it has not seemed expedient to attempt abortive treatment?
4. What internal medicinal treatment do you employ?
5. What local and general treatment do you employ for an acute posterior urethritis of a type so severe as to confine the patient to bed and to require the use of narcotics?
6. What treatment do you employ for urethritis following coitus, but not showing the presence of gonococci?

Answers were received from Dr. L. Bolton Bangs of New York, Dr. Paul Thorndike of Boston, and from Dr. O. Horwitz and Dr. H. M. Christian, both of Philadelphia.

In regard to the first question, as to the possibility of aborting gonorrhea, and the percentage of cases in which the abortive treatment is efficacious, Dr. Bangs believes

that within narrow limits—that is, unless the gonococci have multiplied rapidly and the discharge is florid at the outset—the disease can be aborted in a small percentage of cases. His method is to apply directly silver nitrate, five- to six-per-cent solution. Irrigations he believes to be delusive. The gonococci disappear rapidly, but a catarrh remains for ten or fourteen days which requires treatment, and which, when cured, is subject to relapse from comparatively slight causes. When the abortive treatment fails there are no complications or sequelæ incident to it, excepting the distress immediately following the applications.

Dr. Thorndike does not believe that a case of acute gonorrhea was ever cured in ten days or two weeks; but he holds that with properly carried out irrigations at frequent intervals the course and severity of the disease can be influenced for the better. The routine treatment consists of irrigating with a mild solution of hot permanganate. This does not shorten the disease much, but it keeps most patients clean and comfortable from the start without risk if properly conducted.

Dr. Horwitz believes that the disease can be aborted in a very small percentage of cases. After the patient has emptied his bladder a solution of silver nitrate not stronger than ten grains to the ounce should be applied to the diseased surface by means of an applicator, an endoscope having been first inserted so as to insure the coming in contact of the remedy with the parts of the affected area. The patient is then put to bed, and an ice-cap is applied to the penis. The diet should be restricted, the bowels should be kept free, and methylene blue and urotropin should be administered internally. If successful, the case is cured in from two to three weeks. If unsuccessful, acute inflammatory symptoms appear, and the disease pursues its usual course.

Dr. Christian does not believe in the abortive treatment of gonorrhea, hence no cases are cured; the only effect is an increase in the inflammatory symptoms, and in the severity of the disease.

As to the conditions that lead to the adoption or to the rejection of abortive treatment, Dr. Bangs would attempt it if typical gonococci were present in a thin, scanty, mucopurulent discharge, with a mild hyperemia of the meatus, and no swelling of the corpus spongiosum; otherwise he believes it is useless and that it may be an aggravation.

Horwitz resorts to the abortive treatment when the patient is seen soon after the inflammatory symptoms become manifest; when there is slight itching associated with a small gleety discharge; the microscope showing but few pus cells; the gonococci being few in number, and principally on the cell, and not within the cell wall.

The local treatment employed for the cure of gonorrhea when either the abortive treatment has failed or has not been attempted is thus outlined by Dr. Bangs: "First reduce or modify the hyperemia by bed or absolute rest, laxatives, and a low diet. Prevent multiplication of the gonococci by hand injections of protargol frequently repeated; if irritating, desist, and encourage the suppuration as a conservative process. After the disappearance of the gonococci, treat the catarrh with metallic astringents, and at proper intervals with mild solutions of silver topically applied."

Dr. Thorndike uses expectant treatment with as much local cleanliness as possible, usually employing permanganate, protargol, etc., followed by astringents. Except in a few very acute cases where the method is inadmissible, he uses permanganate irrigations on every patient who is willing to come to him daily, but he does not prescribe such irrigations for the patient to use himself.

Dr. Horwitz uses injections of protargol, or irrigations with a solution of permanganate, on all patients, after the method of Janet. An astringent injection is usually required to complete the cure.

Dr. Christian flushes out the urethra with permanganate of potash solution (1:6000), followed by hand injections of one-per-cent protargol solution.

The internal medicinal treatment employed by Dr. Bangs depends upon the clinical symptoms and the state of the urine. He employs generally alkalies or a balsam, or both, or urotropin.

Dr. Thorndike uses symptomatic drugs, occasionally ol. santali, and salol. Dr. Horwitz gives, in the early stage, methylene blue, and urotropin. During the period of decline he gives capsule of cubebs, copaiba, and sandalwood before meals, and urotropin after meals. Dr. Christian orders copaiba and sandalwood.

In posterior urethritis of the hyperacute

type, Dr. Bangs has had brilliant results from silver nitrate locally, used carefully and repeated. Dr. Thorndike uses no local treatment. Dr. Horwitz finds rectal irrigation with hot water by means of the Kempt rectal douche serviceable. Dr. Christian avoids local treatment.

Non-gonococcal urethritis is treated by Dr. Bangs and Dr. Thorndike with astringents and symptomatic drugs. Dr. Horwitz uses capsules of salol and sandalwood, and astringent injections, with restricted diet. When the patient is convalescent, the urethra is examined for chronic lesions. Dr. Christian employs nitrate of silver one grain to eight ounces, and sulphate of zinc ten grains to four ounces, by hand injections.

It will be seen from the above that the general practitioner who treats cases of gonorrhea by properly regulating the diet, by resting the body in general and the sexual organs in particular, by administering diluents, and later balsams by the mouth (but never in quantities sufficient to disturb the stomach), by administering mild antiseptics, and by using frequently repeated antiseptic injections, is acting in accord with the practice of some, if not all, of the leading specialists in this country. It will be noted that, of the many silver solutions recently put upon the market and vaunted by the manufacturers as specifics in the cure of gonorrhea, protargol is given the preference by all the men whose opinions are quoted in this article.

As to the possibility of aborting gonorrhea, there is an honest difference of opinion. There is, however, sufficient authority for avoiding this method of treatment to make practitioners that do not attempt it feel satisfied they are not falling behind the times.

The irrigation treatment, beginning with a hot solution of potassium permanganate 1:6000 and flushing the entire urethra when the inflammation is total—and this is the rule—twice daily is promptly followed by an almost total cessation of discharge and of all distressing symptoms, nor are painful complications likely to occur. There seems good reason for believing that protargol 1:500, or even in stronger solution, is non-irritant and aids in the elimination of the gonococci; hence this may be employed as a hand injection in conjunction with the permanganate flushing. A persistent muco-purulent discharge requires astringent injections not materially differing from those in vogue twenty years ago, supplemented exceptionally by instrumentation and direct applications.

THE INNOCUOUSNESS OF VARICOCELE.

Probably every one who is called on to examine recruits for the United States military and naval service is struck by the large percentage of men, otherwise robust and well suited for active duty, who, in accordance with the regulations, are rejected because of varicocele. Such surgeons as have had experience with athletes will then recall that this condition is by no means uncommon among men that are supposed to be models of physical development; and the thought naturally will occur that it seems unreasonable to regard varicocele as disabling, since only in exceptional cases does it produce conditions that are in the faintest degree crippling.

In this relation it is interesting to note that Wertenbaker, U. S. M. H. S., says that for the past fourteen years he has had a great deal of experience in examining recruits for the life-saving service, in which service they would be exposed to a heavy strain. Many of these men had varicocele, and his experience has taught him that the ordinary varicocele does not interfere with a man's work, and that a man with varicocele is normal. He holds that a slight varicocele exists in twenty-five per cent of men, and notes that it has not a tendency toward progression.

Lieut. Hutchings, examiner of the pension board at Colorado Springs, has yet to find a man that has disability from varicocele, although there are many persons claiming disability. Colonel Lee thinks there has been altogether too much importance attributed to the effects of varicocele, and implies that his operations have mostly been done for the relief of imaginary ailments from which this class of patients suffer. General Sternberger's report shows that of 9815 recruits examined, 2078 were found to have varicocele. Senn, basing his conclusions on these figures and his own experience, says that this condition is met with in nearly one out of every four men between the ages of eighteen and thirty, that of itself it seldom gives rise to any noticeable disturbance, and that the patients who apply for treatment do so in conse-

quence of nervous disturbances entirely separate and independent of the enlarged spermatic veins. He is satisfied that in many of these cases an operation is superfluous provided the surgeon can secure the full confidence of the patient, an essential prerequisite to successful treatment short of operating.

Young men subject to varicocele, seemingly from the beginning of the era of medical advertising, have been made the victims of those irregular practitioners who make their living, and often a very good one, by preying upon the ignorance and fears of their victims. The commercial pamphlets of these charlatans bearing, as does printed matter to the uneducated, the weight of seeming authority, point out the dangers that are consequent on this deformity, and produce an impression on the victim that is difficult to eradicate. These pamphlets are ingeniously constructed; they detail symptoms to which most men are at times subject, such as headache, deficient memory, backache, and undue nervousness. The symptoms are described in such terms that a vivid imagination, once started on the wrong track, may readily evolve terrors of enormous magnitude. It thus happens that many of these patients, who except for their imaginary diseases are absolutely sound, insist upon radical measures; often, unfortunately for the regular practitioner, after they have already spent their money on the leeches that first corrupted their minds.

Many such patients may be cured by pointing out to them that about twenty-five per cent of healthy men are similarly affected, that the disease as a rule has no tendency to progression, causes no disability, and can be held in check or remedied by douches and a properly fitting suspensory. There are others, however, confirmed sexual brooders, who can be cured only by removing the tumefaction that serves as a constant source of gloomy forebodings. These sexual cranks are sometimes, but by no means always, cured by operation.

Exceptionally it occurs that the varicocele actually produces severe pain in the testicle, often referred to the back; also there may be a slow but progressive atrophy of the testicle. Under such circumstances an operation is distinctly indicated.

Another class of patients require operation because the large veins debar them from entering the United States service; nor should there be any hesitation in adopting surgical procedures when they are clearly indicated. The operation, as performed in modern times, is a safe one. It exposes the testicle to no danger of either wasting or gangrene.

The method of choice is by an open incision, the enlarged veins being separated from the vas, and ligated above and below. The parts between the ligatures are excised, and the two ends brought together by the ligatures. It is a mistake to suppose that the group of veins lying in front of the vas is the one invariably affected. As a rule it is sufficient to ligate and remove these veins, but it sometimes happens that the posterior group, and particularly the clump lying behind and below the epididymis, is the one most markedly affected. The removal of this clump requires a much freer incision, and a much more careful dissection. The only danger to be apprehended in the operation is that incident to infection, provided ordinary care be taken to avoid the vas and its accompanying vessels and nerves.

The division of the spermatic artery has, in young individuals, been followed at times by total destruction of the cord. This is, however, not an inevitable sequel, since it is possible, in middle-aged patients at least, entirely to divide the structures of the cord without marked atrophy of the testicle following. Sloughing of the testicle has been reported many times, usually as a result of infection and before a general adoption of clean operative methods.

The old operation of subcutaneous ligation has, very properly, been abandoned, because of the impossibility of determining the exact structures that have been included in the ligature.

In operating upon patients that wish to pass a physical examination for entrance into the United States service, a transverse incision through the scrotum is desirable, since in two months' time the scar left by this procedure cannot be detected, even on careful examination.

The easiest route by which the enlarged veins can be reached is through an incision along the course of the inguinal canal. Through this incision the entire testicle can be delivered if necessary; but the need for this is quite exceptional. The cord can here

be exposed, and enough of the veins pulled up to render the cure complete.

When the tissues of the scrotum are lax, and the skin redundant, an ablation of the scrotum should be combined with ligation of the veins. This is best accomplished by means of a clamp. So much of the integument is taken away that, on suturing, the remainder is tightly stretched over the testicles.

When the operation is performed on one of that class of patients called "sexual cranks," it is well not to promise complete relief of the symptoms from which the patient suffers. It happens too often that as a sequel of such an operation all the symptoms are aggravated. This is particularly likely to be the case in patients suffering from a small varicocele combined with what, for want of a better term, is called "neuralgia of the testicle."

A not uncommon sequel of varicocele operation is the development of a hydrocele, due probably to removing so many veins that there is no adequate provision for return circulation.

Reports on Therapeutic Progress

A STUDY OF BURNS, WITH A PLEA FOR THEIR MORE RATIONAL TREATMENT.

In the *Medical News* of August 24, 1901, GRIFFITH says that many and varied have been the methods of treatment suggested and advised for these injuries; from the cook's dredger to complicated germicide mixtures, the underlying principle has been the same, namely, to prevent mechanical irritation of the surface of a hypersensitive wound and allow granulation to go on unhampered.

Hippocrates secured the least friction, consequently obtained the best results, in his treatment of burns by using lard and aromatic oils; to-day, carron oil is the common remedy for burn wounds. Oily applications to burns have the disadvantage of becoming rancid and dissolving otherwise aseptic sloughs which are dry from charring, and allowing infection to take place through the sloughing mass. Dressings become saturated and dry with a crust which causes irritation of the wound surface.

Gross found that carbonate of lead mixed with oil, common white-lead paint, applied to burns added to the value of mere lubrications by providing a support for the granulations; thus carrying out the idea of scab formation in wound healing. The coagulation of the contents of vesicles and the serum poured out upon the surface of a burn wound is plainly nature's attempt to form a base for granulation formation, but pus infection too often mars the plans. Guzzo helped scab formation by using glycerin. Billroth employed a solution of two-per-cent silver nitrate, painting over the whole wound. He stated that though very severe pain is sometimes caused by this method, an eschar is formed and healing takes place more rapidly than by other methods of treatment. Skey uses a ten-per-cent solution of the same drug, with a similar object in view.

The danger of using the silver nitrate eschar as a protective and support for granulation lies in the fact that infection will take place beneath it, and being confined increase the irritant action of the pus organisms.

Velpeau found that pressure by adhesive straps would promote healing, and by this means secured support for granulation formation. Druitt followed out the same principle, when in burns which refused to heal he employed a sheet-lead plate cut to the size of the burn and held in place by adhesive plaster. He gave absolute rest to the part, prevented friction, and the burns got well.

As a friction protective silver-foil has lately been employed in the treatment of burns at the Johns Hopkins Hospital.

Picric acid in various solutions has been advised as an early treatment for burns before granulation commences; it is said to deaden pain.

Heath forms a scabbing solution by mixing one part of collodion with two parts of olive oil; using it especially for burns about the face. Pure carbolic acid in solution, lately advised by some surgeons to be painted over burns, counteracts its virtues by being often very painful and by causing additional eschar. Although the intention is to cause a sterile, superficial eschar to be formed over the surface of the wound, we cannot be positive that microorganismal (pus) growth has not taken place beneath the slough. It is therefore not a wise procedure to so seal up a burn wound.

Copeland reports two cases which were

treated in an original manner by him along the same lines. The first patient was a man whose face, ears, and hands had been burned in a boiler explosion. He had been treated with cotton and cosmoline dressings daily with no benefit and was in great pain, with wounds freely discharging. By the use of mosquito-netting the face was protected, and from pasteboard the doctor constructed open-end boxes in which the hands were placed and so held by means of plaster that they did not come in contact with the pasteboard; the ends were covered with netting to keep off the flies. No other dressing was used. By the next day all discharge had ceased, pain had disappeared, and there was glazing of the open wounds. Recovery commenced at once and was uninterrupted, leaving little disfigurement. The second case was that of a little girl, aged two years, whose clothes caught fire, and she was burned on one of her thighs over an area of two by three inches. Household remedies caused the wound to do badly. At the end of two weeks, fever developing, Dr. Copeland was called. He formed an oval pasteboard cover retained in place by adhesive straps, which he left over the wound for three days. Upon removal he found a well-formed scab, no fever, and healing well advanced.

By a study of the principles which underlie these different methods of treatment, we can arrive at but one conclusion: secure protection for the granulations forming over a burned area, and we will obtain a perfectly healed wound. There will be no danger of distortion of the scar or loss of function from contraction. Dusting powders of all kinds are as foreign bodies to burns and prove their irritant properties by the amount of discharge they cause.

Constitutional treatment of a patient burned is of the greatest importance and would naturally come first in a study of ing to Houssell, of Tübingen, a three-per- these injuries, but as our attention is called to the treatment of a burn considered as a wound, it is placed last.

The commonest and most dangerous source of irritation to a burn wound is infection. Suppuration has been considered by most surgeons as inevitable, and until Morton and Morris began advocating antiseptic treatment of these wounds when first seen, nothing was done to prevent this condition. The latter surgeon writes strongly, and says common wound principles are "shamefully neglected" by the profession in these cases. These gentlemen, however, do not advocate frequent changing of dressings of burns, and this teaching is found to be general in the writings of the profession. Morton states the great principle in the treatment of burns to be to allow the dressings to remain on as long as possible. Morris believes that frequent dressings are not only uncalled for but injurious.

From time immemorial it has been taught that air is an irritant to a burn, and the common practice of some surgeons is, when dressings become saturated with discharge, to apply more dressings, without removal of those beneath. Air is not an irritant to a burn, and a burn wound which has been buried under layers of pus-soaked gauze or cotton-batting for days is the better for its removal, without fear of what the presence of air may do or that pain will be caused.

The pain of a burn is due to the direct action of heat upon the terminal sensory nerve-endings; continuous subsequent painful manifestations are due to the irritation of sloughing tissues and applications of dressings. The question of pain occurring when burns are dressed depends on the care with which the dressings are removed, and what the nature of the dressing applied next to the wound surface has been. Gauze, patent lint, or cotton, dry and stick fast to this form of a wound, as to any other where there is any oozing, and will irritate the granulating surface so long as it is on, causing pain when removed at the first dressing or at any subsequent one. The only danger which could arise from removing dressings and uncovering large burned areas is that from loss of body heat following destruction of the epidermis before constitutional reaction has taken place. As a laparotomy wound becoming foul-smelling from discharges is not treated by piling on more dressings, no more should a burn. Seeking to defend his position, one surgeon, speaking of the discharge and odor which follow his treatment of burns with carron oil to which he adds iodoform, states that when a surgeon gets disgusted with the odor so that he is unable to endure it, for the sake of his patient, who if seriously burned will not complain of the odor, he had better take up the occupation of horticulture as being more properly within his (nasal) sphere. This gentleman advises few changes of dressings to be made. Handled thus, burns will verily continue to be,

as they are usually described, "filthy" affections to treat. It is painful to remove a drainage-tube from a through-and-through drainage of an abscess, yet a clogged tube is useless and becomes the determining factor of the temperature-curve tracings of that case. Aseptic surgery is the ideal toward which we strive; the surgeon who fails to keep clean (free from infection) until healed the wounds of the body which he makes knows he has fallen short and will strive in his future work to correct the faulty technique which allowed such invasion. Burns and scalds are wounds, as much so as an incision or a laceration, and demand as careful treatment. The earlier a burn can be dressed the better will be the result.

Of the household remedies it is sufficient to say that they should not be used. Friends would do best by the patient and assist the surgeon if they would confine their efforts to carefully cutting away whatever clothing was loose about the burn, wrapping around the wound a piece of oiled or wax paper, such as florists use, tied on with strips of muslin. A burn wound so handled is in the best condition for right treatment by the surgeon.

In removing the oiled paper protective, with scissors and forceps cut away all shreds of burned clothing remaining about the wound. Puncture blisters and drain fluid, which either will be rapidly absorbed with a febrile reaction, or, coagulating, awaits but the entrance of pus organisms to become a culture medium. Infection being ever present in the skin, by trimming away all detached fragments a source of danger is avoided. With care cut away as much of the burned subcutaneous tissues as possible; a curette may be necessary, and when gently used will cause but little pain. An anesthetic is advised by some surgeons to be used when large, deep burns are to be dressed, and if it does not increase shock it may be useful at times. All of the burned tissues will not be removed at one dressing; inflammation must assist in the removal. Disorganized, dead, burned tissues must be cast off from the living, but we now know that the aid of pyogenic organisms is not needed to further this process.

In selecting an application for a burn, two principles are involved: the agent must cause no irritation and must be antiseptic. The most commonly used antiseptic drug in wound treatment is bichloride of mercury, but in hydrogen dioxide we have that which is almost the ideal wound cleanser. Accordcent hydrogen dioxide solution is equal in power to a 1-to-1000 bichloride solution, acting on bacteria suspended in aqueous solutions; but hydrogen dioxide is superior to it in media rich in albuminous fluid, but poor in cells. Where the latter predominate it is again on a par with the solution of sublimate.

Bichloride solution of 1-to-2000 strength applied to burned areas is often too painful to be borne, and in children has caused convulsions. Carbolic solutions, boric acid, sodium bicarbonate, or the like, in the strengths advised to be used on burns are too weak to be of value and but add to the moisture of the part; if used stronger they become irritants and increase discharge.

Having cleared up the wound, it is next to be thoroughly washed by syringing with a solution of hydrogen dioxide, one part to six of distilled water—the writer has many times used a full-strength solution without causing pain; but as a routine treatment the syringing had better be commenced with weaker solutions. Much dead tissue will be dislodged and washed away in addition to that removed with instruments. When foaming has practically ceased, commence the dressing of the wound by applying all over its surface and well over the edges to sound skin strips of rubber tissue in size about one-half to one-fourth of an inch wide by three or four inches long; each strip to overlap the previous one laid down by a small margin. Rubber tissue is now made membranous in quality, and it is this form which will lie best and cause least irritation.

A few layers of loose, sterile gauze are to be fluffed over the tissue, and the whole held in place with a gauze bandage or by means of two or three narrow adhesive strips. To secure perfect rest we must place the part in the best position to obtain muscular relaxation, applying splints for retention and support. They should be well padded and held to the part by adhesive plaster, over which should be applied a muslin bandage to complete the dressing.

Dressings must be so disposed that no pressure upon the forming granulations will result, or irritation will be caused. Barber uses rubber tissue in large sheets, wrapping it around the limb, as he says "the tighter and more snug the better will the air be excluded and the quicker will be the recov-

ery;" over this he applies absorbent cotton held on with a roller bandage. Where destruction of muscles, tendons, or their sheaths has taken place after burn injuries, the mechanical balance of the mechanism of the joint affected will be destroyed with a commensurate loss of function, dependent on the extent of the injury. In such cases the best we can hope for is ankylosis in a good position for future usefulness.

THE PRACTICE OF BLOODLETTING.

In the *Clinical Journal* of August 28, 1901, BRISCOE gives the following summary of bloodletting:

1. Careful incision; open the vein obliquely; rub limb if blood does not flow, and do the same to the other extremities; keep warmth to the body; to encourage the flow of blood give an inhalation of nitrite of amyl, either with wet-cupping or venesection pure and simple; after operation keep patient quiet in the recumbent posture and in a darkened chamber; administer milk and diluent drinks, and relieve the intestines with some suitable aperient.

2. In certain cases of heart disease, uncomplicated mitral regurgitation when compensation has become inadequate, there arises a gorged and distended right heart and lung with occurring hemoptysis. Six to twenty or more ounces may be removed in these cases. After the operation, drugs like digitalis and diuretics, which have previously failed, will complete the relief.

3. Sudden deprivation of pure atmospheric air from a healthy lung causes the right heart to become distended and paralyzed. This chemical origin of cyanosis is shown in bronchitis and in all gaseous suffocations, and the practice of bloodletting in these cases must be bold and thoughtfully considered. Venesection is thus the therapeutic agent.

4. To discriminate between two conditions: (*a*) When a patient is much choked, laboring hard with his breath, and moreover with his veins distended and the heart dilated, then bleeding is our sheet-anchor. It is obvious that with this state we get a small pulse, and when the distended right heart is emptied the pulse becomes full. (*b*) On the other hand, the patient is choked with bronchitis, but his right heart is acting well. His surface wears a leaden hue from the free circulation of venous blood in his arteries. The pulse is good, but of high tension from the quality of the blood contained in the arteries. The venous system and the liver are not engorged. Bleeding is not indicated in this class of cases, and is an instance of one of the errors and abuses of bloodletting. The right heart is quite able to take care of itself so far. As Dr. Hare ("Good Remedies out of Fashion") puts it, the right remedy in this class of case is the emetic. He says: "In suffocative bronchitis the effect of emetics is sometimes magical, and by their administration in such cases not only is immense relief given, but I verily believe—I am certain—that lives are saved." This, then, with respiratory stimulants is the proper treatment when the bronchial tubes are choked.

5. Avoid bleeding weakly people, broken-down old men, and drunkards. Venesection is also a doubtful agent in acute peritonitis, but a few leeches may give relief.

6. In capillary bronchitis and in pneumonia venesection may save lives: in the former, where there are signs of distention of the right heart; in the latter, when there is a large extent of lung involved with symptoms of cyanosis and heart paralysis. In pleurisy of a diaphragmatic nature venesection is indicated. In pericarditis and pneumothorax, bleeding in the former is useful when orthopnea, irregular pulse, distended jugulars, and arterial anemia are present, should these signs not depend upon excessive effusion into the chest; it is useful in the latter when there is arrest of circulation in the collapsed portion. Again, in thoracic aneurism and tumors of the mediastinum venesection is advisable, as it relieves painful tension and assists the action of iodide of potash. Only a few ounces should be allowed to flow so as not to impoverish the blood.

7. In acute nephritis and uremia bloodletting is sound practice.

8. In lumbago and certain forms of headache of a congestive nature. Dry cupping will be useful in the former, and bleeding, either from the nose, by leeches, or venesection, will give the necessary relief in the latter.

9. When symptoms of impeded venous flow are present in cranial affections, indicated by labored breathing, surface veins full, and face congested, venesection is to be practiced.

10. Bloodletting should not be practiced in a routine fashion.

The above summary will give us some idea of the principles and practice of bloodletting. The practice, as will be seen, requires an intimate acquaintance with disease, the processes of disintegration of the body, and a thorough knowledge of the laws and functions of the human machine. So that the ignorant practitioner and the charlatan are alone responsible for its abuse. Its action is for the relief of tension, distention, and the removal of effete chemical matter. Its therapeutic value is direct, differing from many agents which act only indirectly.

There is a growing tendency in these days to look upon the practice of surgery and medicine as a business or trade. True business qualifications are essential for every professional medical man, but there is another debt we owe to society, which they do not all seem to grasp, namely, the science of our calling, which is not a thing to be carelessly talked about. The fundamental principle of science is truth, and from this arises the true growth of our profession. It is our duty to know why we administer our drugs, antitoxins, and other therapeutic remedies, not to thoughtlessly apply them because we are told they are beneficial, but to work out our own scientific salvation.

In closing the material of this text, an admonition is urged upon the profession not to be too fashionable in the practice of medicine and surgery, but to listen to the dictation of those quoted in this paper. Take the lancet from your pocket, and you may save the life of your patient, as many have done before you.

INEBRIETY: A STUDY OF ITS CAUSES, DURATION, PROPHYLAXIS, AND MANAGEMENT.

In the *Medical Record* of July 27, 1901, DANA gives the following directions for the treatment of inebriety. He believes that the treatment of all that class known as the inebriate is at present of two kinds, the ideal and the practical. The ideal treatment is supervision of the case in an institution insuring absolute abstinence from alcohol in all forms for at least one year. Further personal supervision and watchfulness are needed for two years. After that period the patient is reasonably safe unless he is quite young. Unfortunately, this treatment can rarely be carried out. As already stated, the law does not permit the legal commitment of inebriates, except voluntarily, and then only for a short time.

Under present conditions we have to resort to all kinds of makeshifts. The most common is the "cure." These cures have all the same basis; they consist in the use of strychnine, atropine, and apomorphine or some other nauseant. With these are combined tonics, laxatives, full feeding, and the psychical influences exercised on the patient by the procedures of the cure. These are very important, and illustrate how much better a charlatan can sometimes manage feeble and credulous minds than can the most honest physician. The man who takes a "cure" feels a little pride in the experience, and rather wants to show that he has done a wise thing; he has invested his money, and he doesn't want it to be shown that he has been fooled. He has made a special effort of will in submitting himself to reform, and if the patient has some force of character left he may be helped for a long time. But, as a rule, the patients relapse, and relapses are more frequent since the vogue of the "cures" has become less. Many of these cures have dropped out of sight because the prestige has gone and the psychical influences fail.

Still, often the best thing a drinker can do is to take some kind of a "cure," under the care of his own physician. It must be understood that the treatment is a cure, and it should be planned to last a year.

The patient should stop drinking and usually smoking, and take for three weeks a mixture of nux vomica, capsicum, and cinchona:

℞ Tinct. nucis vomicæ, f℥j;
Tinct. capsici, f℥j;
Tinct. cinchonæ, f℥v.

M. Sig.: One teaspoonful three times a day, increased by 20 drops daily to half an ounce three times a day.

The maximum dose should be continued for a week, and then reduced as it was increased. At the same time two drachms of bromide of sodium should be given daily in cases marked by much nervous irritability and insomnia. The patient should be fed well and often, and avoid getting tired or hungry. When the desire for drink comes on he should be told to take two drachms of

the above mixture, to which is added 1-120 grain of atropine sulphate, and he should fly to hot milk or beef tea to relieve his fatigue. Tonic baths should be added if possible.

After two weeks' rest from medicine the course should be repeated, the patient all the time reporting weekly to his physician.

After the second course a month's interval can be allowed, when it should be repeated again, and so on till the end of the year.

All this is very difficult to secure. Inebriates are impulsive, unappreciative, self-confident, and impatient of restraint. But this is all that one can do outside of an institution.

ALCOHOL IN ITS MEDICAL AND SCIENTIFIC ASPECTS.

WOODHEAD states in an article on this never exhausted subject, which he publishes in the *Edinburgh Medical Journal* for August, 1901, that his views may be summed up as follows:

Alcohol is a narcotic poison, of which the pernicious effects are to be seen at all times, and on every hand. It is a drug which, under certain conditions, may be valuable, but it is a dangerous medicament in the hands of any one but a physician; and even in the hands of the physician or surgeon its exhibition is attended with dangers that attach to the prescription of no other substance in the Pharmacopœia. These dangers are not moral only, but physical dangers, resulting from the action of alcohol on the tissues generally, but especially on those of the nerve centers. Its food value under ordinary conditions is practically *nil*, and, put in the most advantageous light, can only be temporary, and then of an extraordinarily slight and wasteful character.

THE AFTER-EFFECTS OF ANESTHETICS.

In the *Clinical Journal* of August 7, 1901, BLUMFELD tells us that in the treatment immediately after operation the chief points to be considered are the moving of the patient, his feeding, and the atmosphere of the room. Whenever it suits the surgeon equally well, the operation should be performed upon the bed in which the patient is to lie. In this way there is no need to move him about, which is a great gain, and increases the chance of escaping all unpleasant after-effects. Many minor operations and nearly all rectal operations can be thus performed. In the latter cases the patient is on one side, with the buttocks at the edge of the bed. When the surgeon has finished, the patient is simply lifted a little further on to the bed, remaining on his side, with a pillow at his back. This is the best position for all cases after operation, when there is no particular reason against it from the nature of what has been done. When the patient has to be removed from the table to the bed, the head of the table should be placed at right angles to the foot of the bed. Those lifting the patient stand between the bed and the table, put their hands under him, turn round and deposit him slowly, taking particular care not to let the head flop about. Shaking a patient by carelessly moving him certainly increases the chance of after-sickness. The room should be kept at a uniform temperature, without draughts, with a window open at the top, quiet, and with the blinds down. In all ordinary cases the patient should have nothing by the mouth for six hours, except sips of hot water. The first food should be beef tea or thin soup, or tea and some dry toast. When there is much sickness, hot black coffee is useful, as is also inhaling fumes of vinegar or strong sal volatile. Sometimes strong brandy and soda or champagne answer better. In exceptional cases a hypodermic of morphine stops otherwise uncontrollable vomiting.

With many physicians milk is the favorite thing to give as the first food by the mouth after operation. It certainly should not be, for milk is more likely than many other liquids to provoke vomiting in a person who has recently taken an anesthetic. This applies particularly to persons who have taken ether, for there is then almost always after the operation a certain amount of mucus in the stomach that was swallowed when the patient was unconscious. This mucus is more easily vomited or passed on into the intestine if diluted with hot water; if milk is added to it, there tends to be formed a stringy, cheesy mass, which almost certainly provokes laborious vomiting.

A few general remarks apply to all cases after an anesthetic. First, the nature of the individual has a great influence in determining the nature of the after-effects. It often occurs to an anesthetist that he is asked to

anesthetize some one who has already undergone an operation, and has suffered much afterwards—let us say from vomiting—and that ether was the agent used. The patient is anxious not to undergo again the nausea that he enjoyed so little and experienced so long on the first occasion; he accordingly requests you to use chloroform, and as you find nothing in his condition to contraindicate it, you agree to do so. You will now certainly be wise if you tell him that you cannot promise that he will be more free from sickness this time than he was last. The probability is that, granted, of course, he has to be kept under as long as before, his sickness will be just as severe. There are some subjects in whom at the close of the operation one can say almost certainly that he will not suffer at all from after-effects. Such are the big, healthy men, subject to much outdoor exercise, large amounts of alcohol, and good living generally, who take a great deal of the anesthetic, and are by no means the most convenient subjects to anesthetize. A gentleman of this kind seen by the writer, after taking ether and being under its influence for nearly half an hour, sat up within three minutes of the close of the operation, talked perfectly rationally, and felt not the slightest nausea. He had no after-symptoms at all, except a certain amount of headache. Even this need not have been experienced had he been willing to rest quietly, and take a less active interest in the account of the operation and the cleaning of the surgeon's instruments.

Again, the rule applies to all anesthetics that, generally speaking, the more of the agent used the more likely is the patient to suffer afterward. Herein, of course, lies the great secret of the prevention of after-effects. Compatible with perfect anesthesia, use as little of the agent as possible, and it is astounding in this respect what a great difference practice makes in the possibility of conducting a long administration with comparatively little anesthetic.

Thirdly, the preparation of the patient is with all anesthetics a matter of much importance.

THE TAMPON IN GYNECOLOGICAL THERAPY.

BENJAMIN, of New York, writes in the *Medical Record* of July 20, 1901, about tampons as follows:

The purposes for which tampons are applied are twofold, namely, for their (*a*) medicinal and (*b*) mechanical effects. The medicament chosen may be applied for the relief of pain, or to produce counter-irritation, absorption of inflammatory products, or contraction of relaxed tissues. Glycerin is the best adjuvant to other drugs. It is hygroscopic and will assist in the reduction of an enlarged uterus. It tends to soften a hardened os uteri, and also aids to reduce overdistention of the blood-vessels in the organ.

In erosion of the cervix, a tampon carrying a twenty-five-per-cent solution of ichthyol in glycerin will, besides its germicidal action, cause a desquamation of the epithelial cells of the cervix. This has been followed by a regeneration and the return of the cervix to its normal condition.

Chronic endometritis and parametritis will be benefited by placing beneath the cervix a tampon of boroglycerin (forty per cent) or ichthyol in glycerin (fifteen per cent). The packing will also exercise the mechanical effect of elevating the uterus, thus improving its circulation. If after several applications there does not appear to be any improvement, this treatment should be discontinued, and some radical measure, *e. g.* curettage, performed. It is not the intention of the writer to convey to impression that palliative therapeusis of this nature will always replace the more positive remedy of curettage. Chronic metritis may be treated in a way similar to that described under chronic endometritis.

Hemorrhage which has its source from the vagina or cervix is usually controlled by applying a hemostatic such as tannic or gallic acid, or the new preparation, suprarenal extract. Gauze is easily impregnated with these powders, and can then be packed tight into the vagina with the powder in direct contact, if possible, with the bleeding point. In inoperable tumors accompanied by a foul discharge, such as fetid carcinoma, a mixture of equal parts by volume of tannic acid and iodoform will, in addition to styptic effect, act as a powerful deodorant. Should the hemorrhage not be controlled by the above measures, gauze soaked in perchloride of iron, with or without the addition of tannic acid, may be used to pack the vagina. The gauze thus applied forms a hard and impenetrable mass, and is usually certain to control the most obstinate bleeding. Care must be taken, however, to protect the patient's linen

or the bedclothes from becoming soiled by the inky fluid which this combination forms.

In subacute salpingo-oophoritis, after the section of vaginal mucous membrane surrounding the inflammation has been painted with tincture of iodine, a tampon of boroglycerin or ichthyol in glycerin (twenty-five per cent) should be placed against the tumor. The iodine is applied by means of a piece of absorbent cotton wound about a uterine applicator, and care must be taken to express the superfluous iodine, so that none but the required part of the vagina will be painted. The same treatment will be found efficient in pelvic peritonitis where the action of the medicated tampon will loosen the adhesions caused by the inflammatory products.

Vaginitis and vulvitis may be treated by applying a solution of silver nitrate directly to the inflamed parts, and then holding the surfaces apart by a tampon impregnated with boracic acid. A two-per-cent solution of silver nitrate is used at first, and the strength is gradually increased until a ten-per-cent solution is reached. After the swollen parts have been well rubbed with the silver nitrate, the tampon is introduced. The silver has a germicidal action, and the boracic acid assists in modifying the inflammation.

Lusk recommends the tampon in menorrhagia, and experience with it in this condition has led to his belief that "the practically complete repression of the menstrual flow is absolutely harmless." The best method to employ is that of Marion Sims, which in the words of the author is as follows: "Wads of cotton of suitable size, soaked in carbolized water, and compressed into the form of flattened disks, are applied firmly to the vault of the vagina. The Sims speculum is used, and the pads should be placed with the flattened surfaces in a transverse position rather than parallel with the vagina. The packing is stopped at the urethrovaginal septum. They should be removed at the end of twenty-four hours, the vagina irrigated, and a fresh packing applied."

In cases in which this treatment is followed by unfavorable symptoms due to the repression of the flow, the packing may be applied after the patient has menstruated for two or three days, and good results will be obtained if this treatment is even carried out in the intermediate periods.

The mechanical action of tampons has been referred to in the discussion on vulvitis and vaginitis, in which we have seen that the addition of a medicinal agent causes them to assume a twofold function.

In hemorrhage, in addition to the properties already cited, Abbot states that the tampon acts in three mechanical ways: first, to compress the afferent arteries and the os uteri; secondly, to mechanically entangle the fibrin and form a blood-clot; and thirdly, to form a dam to the outflowing blood.

In prolapse, version, and flexion of the uterus, the proper introduction of a tampon will sustain the uterus at a higher level and improve its circulation. In version of the uterus, the patient should be placed in the knee-chest posture, thus throwing the uterus forward, after which the insertion of a tampon in the posterior fornix of the vagina and encircling the cervix in a semicircular fashion will hold the organ in its normal position.

Flexions should be treated with the patient in the dorsal position, and with the tampon in the anterior fornix around the cervix as described above. As these two conditions are usually accompanied by endometritis, the tampon should be saturated with a solution of ichthyol in glycerin, as stated in the discussion on that affection.

Cystocele and rectocele may be relieved by introducing a tampon around and encircling the cervix, and then a second, and if necessary a third, against the os uteri. This relieves the patient from the dragging pains due to lack of support, and removes the cause of frequent and painful micturition to which women in these conditions are subjected.

In cases of miscarriage prior to the fourth month, a tampon serves as a useful adjuvant in terminating premature labor. This is produced by the pressure of the uterus during expulsive efforts against the tampon, which serves to relax the os uteri. The tampon used in this case is preferably of antiseptic gauze impregnated with boracic acid.

When uterine packing is indicated, a vaginal tampon of gauze will serve as a reenforcement, and as an aid in diagnosis, through the discharge which clings to it, it will be found invaluable.

Many women in whom a pessary causes

great discomfort will, after several introductions of a soft cotton or wool tampon, bear the pessary very well.

THE SUTURE OF WOUNDS OF LARGE BLOOD-VESSELS, WITH REPORT OF A CASE OF RECOVERY AFTER SUTURE OF A WOUND OF THE AXILLARY ARTERY.

The *Medical Record* of July 20, 1901, contains an article by HALSTEAD on this subject. He thinks that in considering the indications for arterial suture it is evident that only in wounds of a few of the larger arteries is the operation indicated. In the medium-sized and small vessels there is no danger of necrosis if the vessel is ligated. Again, suture of a small vessel would be impossible. Of the large vessels where suture is important we may mention the aorta, popliteal, common carotid, subclavian, axillary, femoral, and iliac. In subcutaneous rupture of the popliteal, or in gunshot wounds, the vein is nearly always injured because of its relation to the artery, and in nearly all cases a necrosis of the leg and foot follows. Wounds of the aorta may be successfully sutured. If we consider the results of ligation of the common carotid, the value of suture of wounds of this vessel is readily apparent. According to Pilz, the mortality following ligation of the common carotid after injury is fifty-four per cent; Klemm puts it at forty-one per cent. Zimmerman collected all the cases published between the years 1885 and 1891 in which the common carotid had been ligated for any cause, and found the mortality to be forty-one per cent. Pilz also found, in his review of published cases, that in thirty-two per cent of all cases brain symptoms followed; of these, fifty-six per cent ended fatally, the cause of death being ischemic necrosis or hemorrhage softening. Of the cases of wounds of the carotid conservatively treated by suture, so far all have recovered without any untoward symptoms.

In dealing with the technique of suture of wounds of blood-vessels, we have to consider the means of securing temporary hemostasis, the suture material to employ, and the manner in which the sutures are to be introduced. It is scarcely necessary to state that there should be a perfect aseptic condition of the wound. The operation should never be performed in the presence of septic wound conditions. Of the methods of temporarily controlling the flow of blood through the vessels we have (1) elastic constriction, (2) digital compression, (3) temporary ligation, and (4) pressure by properly protected hemostatic forceps. In cases in which it is possible, as in wounds of the popliteal or femoral, the circulation can best be controlled by elastic constriction. In other parts of the body where this means cannot be employed, digital compression, preferably by pressing the vessel against a strip of gauze placed underneath it, as practiced by Murphy, is the most convenient and safest procedure. The use of hemostatic forceps having light, flexible blades, which have been covered by pieces of rubber drainage tube, has been found satisfactory where other methods were not available. There is, however, always great risk of permanently injuring the vessel when the forceps is used. Temporary ligation with an ordinary silk or catgut ligature is dangerous, and should not be employed.

Since operating on his recent case, in doing experimental suture of arteries on dogs, the author has secured temporary control of the circulation by passing a loop of tape around the vessel and twisting it until the lumen of the vessel is closed, and then holding the tape by means of an artery forceps, applied close to the vessel. With this method the wall of the vessel is not injured, and the ligature can be quickly removed after the suture is completed. This method also has an advantage over digital compression in that it excludes from the field of operation the hands of an assistant that are in the way and that may be a source of infection.

In the selection of suture material, some operators prefer catgut, others silk. The chief advantage claimed for the catgut is that when it becomes moistened it swells and closes the needle punctures, thus controlling the hemorrhage which frequently occurs. Many prefer silk for suture because it supports the line of union longer than the catgut, and also because, being non-absorbable, it acts as a foreign body and stimulates the proliferation of the connective tissue and endothelial cells and thus adds strength to the cicatrix. The experiments of Tichow go to show that when silk is employed it never shows any tendency to pass into the lumen of the

vessel, but always in the opposite direction. Doerfler found in his experiments that when the animals were killed in from one to four days, the suture remained unchanged. After five to eight weeks the sutures were no longer visible in the lumen of the vessel, their position being marked only by a circumscribed thickening of the intima.

In introducing the suture, some include only the adventitia and media, while others penetrate all the coats of the vessel. Jassimowsky strongly advocates the former. He claims that in not penetrating the intima the risk of thrombus and of hemorrhage from the needle punctures is lessened, and that secondary hemorrhage is not so apt to occur. On the other hand, Doerfler is equally positive that there is no good reason for not including the intima, and that technically the operation, when all the coats are penetrated, is not so difficult as when only the outer two are included. In the suture of longitudinal wounds of arteries, it is best to use a continuous catgut suture penetrating only the two outer coats of the vessel. After the wound has been closed an additional suture of the perivascular connective tissue over the wound in the vessel will add strength to the line of union. If the intima is penetrated, the slight hemorrhage from the needle puncture which always follows can be controlled by pressure exerted for a few moments. The needle should always be a fine, round, curved intestinal needle. In complete and transverse wounds of arteries, or when more than one-half of the circumference has been divided, the best method of uniting the divided ends is the invagination method of Murphy, the proximal end being invaginated into the distal by means of two or three silk sutures which are first fastened to the proximal end and then passed through the walls of the distal end from within outward. Tying these sutures draws the proximal end into the distal. After this four or five interrupted sutures penetrating only as far as the intima of the invaginated vessel are used to bind the two together.

Other methods of securing end-to-end union of arteries have been attempted. Glück and Nitze devised ivory and rubber rings to secure the ends of the divided vessel. Recently Payr, after a long series of experiments and clinical study, suggested the use of a metal tube, which is slipped over the distal end, leaving about one-half inch of the vessel projecting through the ring. This is then turned cuff-like back over the ring, so that the intima is external. The proximal end is then turned over this cuff and fastened by a ligature which fits into a groove in the ring. He also experimented with a metallic coupler similar to the Murphy intestinal button, which he used for securing end-to-end union of arteries. These rings and couplers were made of metallic magnesium, which was found to be rapidly absorbed when embedded in living tissue. Experimentally, Payr's device was fairly satisfactory, but so far it has not been used on man.

In the treatment of wounds of arteries where there has been a loss of substance, it has been suggested by the same author that the opening be closed by a magnesium plate fastened between the adventitia and media. In a wound of the common carotid of this kind, when resection with end-to-end union could not be accomplished, Glück closed the defect in the artery by suturing over it a flap taken from the internal jugular vein.

After the suture of any large blood-vessel the operation should be closed by buried sutures of catgut without drainage. The accurate coaptation of the edge of the wound will materially support the injured vessel and act as a safeguard against hemorrhage.

ONE TREATMENT FOR GONORRHEA.

In the *Cincinnati Lancet-Clinic* of July 20, 1901, CLARENCE MARTIN, of Tien-Tsin, China, says that among the many drugs and methods of treatment, potassium permanganate and the Janet method of irrigation have probably gained the most popularity; and this fact has led to the blind and indiscriminate use of this plan. Permanganate of potassium has given fairly good results, but a great many cases are not cured by permanganate of potash. It has been the writer's plan, where it has been practicable, to treat a case of urethritis with low-pressure irrigations of very weak solutions of the above named drug, gradually increasing the strength of the solutions according to the apparent demand of the case. But this agent has not accomplished in his hands what it has apparently done for others, and

he has looked elsewhere for a more positive curative agent.

Silver in some cases has proved very effectual, and it now occupies a fixed place in therapeutics of the genito-urinary system. But of the many stars shining in this particular section of the therapeutic firmament, mercurol shines brightest. He then goes on to briefly detail his experience with this mercurial product.

It was first used in cases that resisted permanganate of potassium. It was put to a severe test, and the result led him to use the drug in other cases under his care. Some of these were treated by irrigation with a solution of mercurol of the strength of 1-to-1000 or 1-to-1500, and others by the syringe with two- and three-per-cent solutions. It is not irritating, and has a peculiarly antagonistic action upon the coccus of gonorrhea.

In cases with a profuse purulent discharge, mercurol in a few days reduced the consistency of the pus. From this stage the discharge became gradually thinner, and in quantity diminished very perceptibly. In an average period of from fifteen to twenty days the discharge ceased, the only indications of the disease being a gluing of the lips of the meatus in the morning. By occasionally passing a sound, and still persisting in the use of the mercurol solution, a cure was generally effected in from twenty-eight to thirty-five days.

Although every case treated with mercurol did not pursue an even and favorable course, the results obtained indicate that it is the most satisfactory gonococcide we have.

HOT-WATER IRRIGATIONS OF THE BOWEL IN SCARLATINAL NEPHRITIS.

SAUNDBY, in the *Birmingham Medical Review* for September, 1901, quotes Kerley, who recommends irrigation of the colon with hot water as the best means of restoring the functions of the kidney in scarlatinal nephritis. It should be employed whenever the quantity of urine is diminished or when convulsions occur. In a child aged three years, 500 to 750 cubic centimeters of water at a temperature of 43° C. should be introduced by means of a rectal tube passed into the rectum for a distance of 2½ centimeters. If the water is returned at once it must be repeated, and irrigation should be continued every six or eight hours. After three or four administrations the kidneys generally commence to act and abundant diuresis takes place.

CONCERNING THE TREATMENT OF THE APPARENTLY UNAFFECTED OR AT MOST BUT SLIGHTLY INVOLVED EYE IN CASES OF PRIMARY GLAUCOMA.

G. E. DE SCHWEINITZ (*Philadelphia Medical Journal*, Sept. 21, 1901) describes in monolateral acute glaucoma the signs by which one may reasonably infer that the apparently sound eye will suffer an attack like its fellow, as follows:

(a) Shallowness of the anterior chamber, beginning opacity in the lens with swelling, a high degree of hypermetropia, and smallness of the corneal diameter.

(b) The mydriatic test suggested by Edward Jackson, G. C. Harlan, and W. A. Brailey. This consists of the instillation of a solution of homatropine into an eye which is under suspicion, and noting whether it produces any rise in intraocular tension, or pulsation of the blood-vessels of the fundus.

(*c*) The palpation test—that is, an observation is made whether finger-pressure on the globe, so slight that in a healthy eye it does not cause pulsation of the blood-vessels of the fundus, does cause them to pulsate in the eye under suspicion.

(d) The history of prodromal glaucomatous phenomena.

If these signs are positive an iridectomy (according to some a sclerotomy) should be performed upon this eye as soon as the anterior chamber is restored upon the opposite side—that is to say, as soon as the wound has closed; in the meantime the eye should be kept under the influence of a myotic.

Similar advice is given in cases of chronic congestive glaucoma.

The answer to the question, "What shall be done with the apparently sound eye after the first eye has been operated upon for chronic simple glaucoma?" is confessedly more difficult, but also less frequently necessary, because so many cases of chronic non-inflammatory glaucoma are bilateral almost from the start.

Less frequently this type of the disease is truly monolateral, or as nearly monolat-

eral as these cases ever are. The signs by which one may reasonably infer that the apparently sound eye will pass, gradually to be sure, into a condition resembling the one upon the opposite side are the following:

(a) Ophthalmoscopic evidence furnished by the formation of a cup beginning to be pathological on the temporal side.

(b) Periods of increased intraocular tension detected with the educated finger-tips, placed, as Coccius and Schweigger advise, upon the sclera itself. Such examinations should be made at different hours on the same day and repeated in the evening, as it is well known that in this disease increased intraocular tension is not constantly present and may be absent for hours and even days at a time.

(c) Alterations in the visual field. In typical cases restriction begins on the nasal side, and contraction of the color field corresponds with that of white. As this rule meets with exceptions, and perhaps frequent ones, it cannot then be utilized alone as a safe guide of action; but if on successive days, under the same circumstances, controlled if necessary by separate examiners, and especially if the test-objects include squares of gray paper (Ward Holden's tests, for example), the visual field is found contracted, it may be on the nasal side or it may be concentrically, it is fair to assume a beginning pathological change and to act accordingly.

But it is not sufficient to trust to the periphery of the visual field for information. The author is convinced that the study of scotomas in connection with chronic glaucoma furnishes a prognostic guide. There is no difficulty in finding them, either by the method suggested by Bjerrum or by ordinary perimetric methods, when care is taken to investigate each meridian and suitable test-objects are employed under varying degrees of illumination. These scotomas are topographically different from those which occur in simple atrophy, and may be utilized as a differential test between the two conditions, as Bjerrum has already suggested.

(*d*) De Wecker's sclerotomy test. This surgeon has suggested the performance of anterior sclerotomy in doubtful cases—an operation which he thinks is harmless. If the symptoms are ameliorated, especially if the visual field enlarges, the suspicion is confirmed, and iridectomy may be performed. With this test the author has no experience.

The paper concludes with the following suggestions:

1. In cases of acute glaucoma, the apparently unaffected eye should be operated upon as soon as the anterior chamber is completely restored in the opposite eye; that is to say, as soon as the wound is firmly closed, provided the history of the case or an examination of the eye furnishes the indications already described that it is likely to suffer a glaucomatous attack like its fellow, especially if the patient is so situated that he or she will pass from observation and from the resources of expert examination.

2. In cases of chronic congestive glaucoma the same line of advice applies, and the operation is to be urged if clear information can be obtained that the apparently unaffected eye has suffered attacks of nebulous or iridescent vision, associated with increased intraocular tension.

3. In cases of chronic simple glaucoma, if any periods, however temporary, of increased intraocular tension can be demonstrated according to the methods already suggested, operation should be performed even if central and peripheral vision are intact. Even when these are normal, careful perimetric examination may reveal a scotoma of the character already described; if so, operation should not be postponed.

4. In cases of absolute glaucoma, the same line of advice expressed under No. 1 and No. 2 is applicable.

THE MEANS OF ARRESTING ACUTE ENDOCARDITIS.

We have quoted CATON in previous years when writing on this subject. In the *Edinburgh Medical Journal* for October, 1901, he says that the first requirement, rest, is by far the most important part of the triple method which is laid before the reader. Passing on to the second, the author points out that the salicylates do not achieve so much for the heart as they do for the articulations. They lessen fever and remove pain and swelling in a marvelous manner, but there is no evidence to prove that they prevent or remove endocardial affections. Moreover, the heart tonics, digitalis, strophanthus, caffeine, etc., appear to have an

injurious rather than a beneficial effect. Is there any other channel by which we can stimulate the trophic and reparative processes in the heart without impairing vitality or increasing mechanical activity? Can we obtain any hint from measures which influence rheumatism favorably in other organs? The author thinks we can. Long experience has taught him to rely confidently on the effect of small blisters, applied locally, in relieving rheumatism in joints when the salicylates fail. Every one who has given this method a fair trial accepts it. The effect is doubtless due to stimulation of vasomotor and trophic nerves in the joint.

If this be admitted, the question next suggests itself: Stimulation of the surface skin being so potent in aiding recovery in a joint, is it not possible that a like therapeutic effect might be produced in the rheumatic heart, if similar stimulation of its related skin areas were practiced? It is well known that the first four dorsal nerves are related and coordinated in the closest manner with the cardiac nerve mechanism. Although the distance between the thoracic skin and the cardiac nervous centers, via the afferent neuron, the cord, and the sympathetic ganglia, is greater than that between the skin of a limb and the joint structure beneath it, there is strong probability that impulses would travel readily along so definitely coordinated a route as the one in question. Can we, through this channel, excite the trophic centers of the heart to increased effort in the combat with the poison of rheumatism? It seems worth while to make the attempt, especially as by no other avenue can we, as far as is known, hope to influence the nutrition of the heart. In pursuance of this theory, a succession of small blisters is applied to the wall of the chest, between clavicle and nipple; each blister is about the size of a florin, and is followed by a small poultice. If the application is made in the proper manner, scarcely any pain or inconvenience is complained of by the patient, even in the case of children.

Thirdly, in the brief compass of this paper it has been impossible to describe the structural changes which take place in the valve cusps, or the considerable amount of imperfectly organized material which is effused into the substance and upon the surface of the inflamed cusp. If complete restoration is to take place, it is essential that this effused material should be absorbed and removed as soon as possible. It seems, therefore, wise to administer one of those drugs which are believed to absorb effusion and remove thickening in fibrous tissues. Of these, sodium iodide seems the most suitable; it is consequently given. The iodide may also be of service, along with a restricted diet, in lessening the volume of the blood.

In conjunction, therefore, these three methods are employed in every case of endocarditis, namely, absolute rest, stimulation of cardiac trophic centers, and the administration of sodium iodide.

Now a word or two about the results of this treatment, as applied to the ninety-two cases he speaks of. It is needful to divide this series into two groups. The first consists of those instances, sixty-one in number, in which a murmur and other signs of valvulitis existed at the time of the patient's admission to the hospital; the bruit was probably recent, but its exact duration was impossible to ascertain. Out of these sixty-one cases, forty-one left the hospital with apparently sound hearts, while in twenty the signs of valvular disease persisted. Secondly, in thirty-one cases the bruit and other signs of valvulitis came on while the patient was in hospital, so that its exact duration was known; of these, twenty-eight left hospital with an apparently sound heart, and three with valvular disease.

These results, so far as is known, are superior to those obtained if no special treatment be directed to the heart.

In judging of the results, it is desirable to note the patient's condition months or even years after direct treatment has ceased. The author has endeavored to do this as far as is practicable, but with hospital patients it is only possible to a limited extent; so far, however, as he has succeeded in keeping these cases under observation for lengthened periods, the results have been highly satisfactory. But even where this proves impossible, the probabilities of future immunity are much greater when we have watched the gradual subsidence of bruit and pulmonary accentuation, and when, after long rest, the patient leaves hospital with sounds both of the apex and at the pulmonary valve absolutely normal, and no embarrassment of breathing on exertion—much greater than when he returns

to his work with a murmur and dyspnea following all muscular effort.

Three important points remain to be stated: (1) This treatment is of no use unless it be commenced early; if the disease has been manifest for more than two or three weeks, it is of little use. The earlier it is commenced the better is likely to be the result. (2) When apparent recovery has taken place, it is important that the patient refrain from arduous muscular effort, from everything, indeed, that puts strain upon the heart, for some three months. (3) It is highly important that no further attack of acute rheumatism take place; if that disease should recur within some months, the valvular mischief is almost sure to recur also, and then to prove more difficult of removal than in the first attack.

In summing up the conclusions which a somewhat lengthy period of observation has led him to entertain, the author gives them in the following form: (1) If the cardiac complications of acute rheumatism receive no special treatment, and the patient is allowed, when the rheumatism has subsided, to return to his usual course of life, he will in the great majority of cases become the subject of organic heart disease. (2) In all cases of acute and subacute rheumatism, and in the obscure cases of rheumatism peculiar to childhood, it is important to keep a close watch upon the heart, so as to detect the onset of valvulitis in the early stage. (3) If the disease be early detected, and is then judiciously treated, in a large proportion of cases organic mischief will be averted.

If success is to be secured, a careful selection of cases is essential, and so also is perseverance in treatment; but every one will admit that no amount of care and trouble are too great, if immunity from valvular disease is to be attained.

THE USE AND ABUSE OF NASAL SPRAY.

In the *Atlanta Journal-Record of Medicine* for October, 1901, Roy asserts that the abuse of sprays consists in, first, the improper use of spray solutions. The indiscriminate use of different substances in an atomizer without due reference to their suitability to the given case is a most egregious error. Such practice frequently does harm to the nasal mucous membrane, and certainly does not increase the reputation of the physician. Each case is a law unto itself, and as such requires discriminate treatment. Sprays are excellent in their place, but every case coming to the rhinologist does not require their use. In fact, many of our best rhinologists condemn the use of nasal sprays altogether, claiming that more harm than good is produced through their use. In Germany, one rarely ever sees a rhinologist make use of a spray. If they were confined more to the pharynx and nasopharynx, there would be fewer afflicted patients.

The second abuse of sprays is the frequency of their use. This is a great and growing evil among rhinologists. The popular use of late of the menthol oily spray is largely responsible for this error. Then again, the desire on the part of the rhinologist "to be doing something," is another fruitful cause. Experience teaches one that there exists a "spray habit," just as we find that of cocaine and morphine. This occurs among patients who use the menthol spray. While menthol is a valuable nasal therapeutic, yet the harm it has done to nasal mucous membranes far outweighs the good. The cooling sensation produced is most refreshing to the patient, and, like cocaine, seems to open up the stuffy nasal passages; but experience shows that a reaction of dryness is sure to follow its prolonged use, and this necessitates a more frequent application in order to overcome just this subjective sensation.

The third abuse of the spray consists in the force of the spray. This, of course, applies more particularly to those used by means of the compressed air. Patients have been known to complain that when they had previously been treated, the use of the spray was always followed by severe bleeding. This the author considers absolute barbarity. A compression of 15 pounds is quite sufficient force with which to throw liquids into the nasal cavities. A force greater than 20 pounds always causes an abrasion of the mucous membrane, especially if water solutions be used. Traumatism of the membranes by the use of such strong compression in the sprays always works serious injury. Hence judicious use in the force of a spray must always be taken into consideration.

In speaking of sprays, mention has not been made of the use of a solution of co-

caine. Mention is made only for the purpose of condemnation. The author has never seen a case which required a spray of cocaine, but has seen cases of the cocaine habit which had its origin through just such a mode of treatment on the part of the physician. He always applies cocaine by means of cotton on the end of an applicator, thus limiting its action to the desired portion. If this be done there need never be any fear of cocaine intoxication. The author considers it almost criminal to spray a solution of cocaine in the nose, especially if it be a chronic case, and is firmly convinced that the number of cocaine habitués would be lessened if this advice was heeded.

CARDIAC PAIN AND ITS TREATMENT.

The *Clinical Journal* of October 9, 1901, contains a lecture on this topic by LATHAM.

If the pain is due to the heartburn following dyspeptic disturbance, we must attack the digestive organs. The pain dependent on dyspepsia may be relieved by suitable means; for example, by a careful dietary, by bismuth and hydrocyanic acid and other stomachic sedatives, together with an occasional mercurial purge. A definite attack of pain may be relieved by a mixture such as sp. æther. co. and sp. camph. co. ää 3j in aq. menth. pip. 3j. If this is not successful we must have recourse to small doses of morphine.

Local conditions, periostitis, intercostal neuralgia, and rheumatism are often relieved if we support the parts by strapping, or by plasters of belladonna, and the like. If the plaster is applied in strips it is more efficacious than a piece of plaster four by five inches. Where the cardiovascular system is affected, the pain is believed to be often due to dilatation of the ventricle, or to strain following on increased work, and that gives us a clear idea of what we should do for this class of patients, viz., that we should in the first instance give them rest. Careful instructions must be given as to the general health. If these, together with rest, do not relieve the pain, we may apply belladonna plaster, or better still flying blisters, constantly repeated, to the position of the pain. As far as internal remedies are concerned, there are only two drugs that have any effect at all upon the pain found in cardiovascular conditions other than dilatation, and those are potassium iodide and arsenic. In aortic regurgitation or atheroma there is no drug which has anything like the power of potassium iodide in from ten- to fifteen-grain doses. If after a trial, extending, if necessary, over some months, you find the pain is not becoming less, then try arsenic. The writer gives the majority of his cases potassium iodide in the first instance. If this drug combined with rest does not relieve the pain, the author recommends arsenic given alternately with potassium iodide. In dilatation we must have recourse to digitalis and other cardiac tonics. During an attack of definite pain in cardiovascular cases, rapid stimulants and carminatives are called for, such as ether, ammonia, and alcohol. If these do not relieve the patient, it will be found that leeches, which act so extremely well in the pain of pericarditis, are probably our best remedy, especially when combined with a large dose of calomel. If leeches do not bring relief, then we must have recourse to morphine.

THE INCIDENCE, NATURE, AND TREATMENT OF CHOREA.

In the *Clinical Journal* of October 2, 1901, DUCKWORTH tells us that the treatment of chorea by drugs can hardly be considered as satisfactory. The author in a previous lecture referred to the distinct value of chloral hydrate as a remedy for inducing quietude and sleep in these cases. Paraldehyde has also been of much service in this instance. Many drugs have been credited with virtues in curtailing the malady. Zinc salts were much in vogue at one time. Arsenic has long had the best reputation, however. The late Dr. Farre, of St. Bartholomew's Hospital, was of the opinion that Valengin's solution, the acid preparation of arsenic, was more useful in chorea than Fowler's alkaline solution. It was urged some years ago by Dr. William Murray, of Newcastle-on-Tyne, that the most rapid cure of chorea was to be witnessed if large doses of the drug were employed. This he learned from an irregular practitioner whom he attended on his death-bed, and who had enjoyed a reputation for rapidly curing this disease. Ten or twenty minims, or more, of Fowler's solution was advised, repeated thrice a day, and these large doses were declared to be well borne. Many of us have

tried the plan, with care, so as not to induce toxic symptoms, but there is dissatisfaction with its merits, and always a risk of inducing peripheral neuritis, which is not lightly to be disregarded. No remedy is more resorted to than arsenic in these cases. It is indicated as a general nervine and nutrient tonic, and it may, and probably does, possess some antitoxic properties. We recognize its value in malarial poisoning. We may find in the earlier stages of the disorder that salicylate of sodium with bromide of potassium is a good combination; and in the later stages that arsenic may be of service, together with iron. Antipyrin is also of value in the earlier stages. Rest and quiet are essential. It is well to carpet a ward in which a case is treated, to screen off the bed, and subdue the light. The nourishment should be given by mouth or nasal tube according to circumstances. During recovery a little wine is useful. The late Dr. Radcliffe, of the Westminster Hospital, treated chorea by large doses of wine and morphine, but this practice is not to be recommended. If sleep can be secured and a sufficient amount of food be taken, most cases do well.

LOCAL TREATMENT OF TUBERCULOSIS OF THE LARYNX.

In the *British Medical Journal* of September 28, 1901, HUNT tells us that in every case of laryngeal phthisis coming under his care he tries to determine whether it is one for curative or for palliative treatment. This is not always easy to do. At times cases of limited disease, in which we expect a cure, go to the bad, while in others extensive ulcerations, which appear hopeless, will heal up, and the disease become arrested for long periods.

Curative treatment, as the term is understood, is essentially surgical. It means the removal of all diseased tissues by cutting instruments, or their destruction by caustics, such as lactic or chromic acid.

Palliative treatment includes all antiseptic and local anesthetic applications, and is only occasionally surgical, as when the necessity arises to relieve dyspnea or severe dysphagia.

The cases suited for curative treatment are those of limited disease, preferably situated intralaryngeally, and of a hypertrophic form indicating local resistance; cases in which the lung disease is slight in amount, and either stationary or only very slowly progressing, the general health and appetite being good, the patient being free from fever, and of a courageous and hopeful temperament.

Whenever we have extensive ulceration or infiltration, especially with much edema or perichondritis, where there is high fever, loss of appetite, advancing lung disease, or evidence of the patient being deeply stricken, our treatment must be strictly palliative.

For carrying out curative treatment, Hunt employs the curette, cutting forceps, and lactic acid. Which of these agents we choose for a particular case will depend on the nature of the lesion to be dealt with and on its situation. Neither lactic acid nor any other application will remove an infiltration covered by unbroken mucous membrane. Wherever we have well defined, or at least limited, infiltration without ulceration, a mass of granulations, or a distinct tumor formation, the first step must be the thorough removal of the diseased tissue by the curette, followed by an application of lactic acid. These operations are often extremely difficult, far more so than the removal of simple growths, on account of the great irritability of the pharynx in this disease, and are apt to be very painful when performed on parts at the entrance to the larynx. With the simple curette hemorrhage is trifling, but once or twice he has seen it rather free after using the cutting forceps.

He has never performed the extensive operations advocated by Schmidt, Krause, and Heryng, and in England by Lake, but has confined his use of the curette and forceps to cases of limited disease, where there appeared to be a reasonable probability of removing the whole diseased tissues by operation.

Other methods of dealing with tuberculous infiltrations, such as scarification with the rubbing in of lactic acid, or the submucous injection of creosote, iodoform emulsion, lactic acid, chloride of zinc, etc., have now been almost entirely abandoned as unsatisfactory in their results.

In the great majority of the cases we meet with, ulceration is already present. If it is superficial and not too extensive, especially when situated on the cords, ventricular bands, or posterior wall, lactic acid alone will usually secure healing. He believes it is still the best application we possess for treating tuberculous laryngitis in

the stage of ulceration. He quotes a recent American writer as speaking of the lactic acid treatment as "antiquated and barbarous," but the only substitute this writer offers us is an emulsion of menthol and orthoform, which, however valuable for palliative treatment, is utterly useless to obtain healing of ulceration or to destroy infiltrations.

There is still some difference of opinion as to how to use lactic acid. We must remember that it is not as an antiseptic but as a destructive agent that we employ it in laryngeal phthisis. It is of little use, therefore, to employ solutions of less than fifty per cent, and we should rapidly go on to pure acid. We should not worry the larynx by frequent applications, but having thoroughly rubbed into the ulcerated surface a strong solution, wait till the slough clears off, in a week or a fortnight, before renewing our application. In this way three or four applications will usually bring about cicatrization. We occasionally meet with cases in which these strong solutions are not well borne, and must then use weaker ones of twenty to thirty per cent, but such cases are very rare.

In the case of deep, granulating ulcers of limited extent, the lactic acid should be energetically applied in the same manner, but it will often hasten healing if we first thoroughly curette the ulcerated surface.

Unfortunately a large number of the cases we meet with, especially among our hospital patients, only admit of palliative treatment. The extent of the disease and the state of the general health prevent any hope of eradicating or even arresting the disease, but still we can do much to relieve their sufferings. We know that an untreated case of laryngeal phthisis goes more rapidly bad, and with more suffering to the patient, than a treated one. The inflammatory edema, often the cause of dyspnea and dysphagia, we know to be due to secondary infection by streptococci and staphylococci. This secondary infection may be prevented, or at least held in check, by the use of antiseptics such as menthol, carbolic acid, iodoform, etc., applied by brushings, sprays, injections, or inhalations. Nearly all these drugs have at some time been recommended to procure the healing of tuberculous ulceration of the larynx, but it is doubtful if any merely antiseptic application will bring about cicatrization of a tuberculous ulcer.

A difficult question, and one which must largely be left to individual experience, is to what extent we may use surgical means in the palliative treatment of this disease. The incision of an inflammatory edema of the arytenoid or epiglottis, which was first practiced by the English physician Marcet, is a rational surgical procedure which will often relieve dysphagia, and is not followed by ulceration, as was at one time feared on purely theoretical grounds.

That the punching out of a painful ulcer on the edge of the epiglottis, or over an arytenoid, is often the most effective way of relieving the terrible dysphagia there is no doubt, and the writer employs this method where the condition of the patient permits, if lactic acid alone does not give the necessary relief. But he is opposed to performing these painful operations in advanced and hopeless cases, where we can at least mitigate the sufferings of the patient by the use of local and general anesthetics. It is in such cases that Freudenthal's emulsion will be found of value.

With regard to external surgical treatment, tracheotomy will occasionally be required to relieve dyspnea, though as Schmidt, its most strenuous advocate in this disease, admits, much less frequently now than formerly. The improved intralaryngeal treatment has lessened the necessity for it.

As a curative measure it has now been replaced by thyrotomy in those cases where the laryngeal disease from its extent or situation cannot be completely removed by intralaryngeal operation, there being very little or no disease of the lungs present, and the general health being good. That a partial laryngectomy might be a justifiable operation in certain rare circumstances, such as severe one-sided laryngeal disease with a good general state of health and absence of disease of the lungs, we may admit, but the conditions which justify external operation in tuberculosis of the larynx are so extremely rarely met with that they need hardly be considered in a discussion on the local treatment of that disease.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC IN NASAL SURGERY.

MACKIE states his views as to this anesthetic in the *British Medical Journal* of September 28, 1901. As he well says, the question of an anesthetic in intranasal surgery

is often a pressing one. Cocaine, though invaluable when only the mucous membrane and subjacent parts have to be dealt with, is not so satisfactory when the deeper structures are involved. Gas is unsatisfactory, from the shortness of the anesthesia as also from the tendency to struggle under its use. Chloroform and ether, on the other hand, while they introduce an element of dread into the minds of our patients, cannot well be used in the upright position, a matter certainly of inconvenience to the operator.

Some five months ago the writer's attention was called to chloride of ethyl as a general anesthetic, and he at once put it on trial. He has had it in use ever since, and finds that it has greatly simplified and facilitated his work in nasal surgery. In operations on the turbinals and sinuses he has used it twenty-seven times, four times in adenoids, twice in septal deformity. In addition he has given it for dentists and general surgeons fifteen times, making in all forty-eight administrations. In no case has he had the slightest anxiety or seen one dangerous symptom. In one or two cases, notably in one full-blown alcoholic, the administration was found to be rather expensive, from the amount of the drug required, while in a few earlier cases, through dread of giving an overdose, the anesthesia was shorter than was convenient.

The mode of administration which the writer found most satisfactory is to press the mask well over the face so as to exclude all air, and to give the drug briskly and continuously, taking care to send the spray right into the gauze in the ball of the inhaler. For a short operation such as the curetting of the anterior ethmoidal cells, he has found from one-half to three-quarters of a minute of this brisk administration sufficient. This will give an anesthesia of from two to three minutes. For longer operations it may be pushed considerably beyond this. The action of the drug is so energetic that there is some difficulty in being sure as to the extent of the anesthesia, but by quickly removing the mask and testing the conjunctival reflex, he has generally been able to satisfy himself as to this. From the local action of ethyl chloride in the nasal passages anemia is produced, and we have practically a bloodless operation. This is a decided advantage. A caution is, however, necessary. The anemia soon passes off and violent hemorrhage may ensue, and if we have allowed our patient to leave without providing for this by plugging, we may meet with unpleasant results.

From the writer's experience of ethyl chloride, or as its purified form is named, "kelene," he believes that while it is certain to find a place in surgery generally, in nasal work it will prove of inestimable advantage, not only as a convenience for the surgeon, but as a safe and almost pleasant means of enabling a patient to undergo what otherwise must be a very trying ordeal.

GENERAL TREATMENT OF METRITIS.

CAMPBELL, of Belfast, gives the following directions in the *Medical Press* of September 25, 1901:

There can be no question about the utility of immobilization of the uterus by an abdominal belt, so far as that is possible; about the avoidance of fatigue and strain; about avoidance of sexual intercourse; about the use of laxatives and dieting, or of glycerin or water enemata or of glycerin suppositories to aid evacuation of the bowels; or about the advantages of general tonics and of the natural medicinal waters—the ferruginous for the anemic cases, the alkaline for dyspeptic patients, and the indifferent and sodium chloride waters for the neurotic.

Douches are undoubtedly useful, but require to be used more energetically than they usually are. The amount of water should not be less than two quarts for each douche; the duration of its application should be at least twenty minutes; the temperature should be gradually raised from 100° F. to 120° F.; the frequency should be at least twice a day; the position of the patient should be dorsal with the hips well raised; and the residue should be carefully evacuated from the vagina after each douche. To gain any real effect from them hot douches need to be continued for months. Hip baths are also of some service, especially when a bath speculum is used, but are inferior to douching properly done.

The advantages of the tampon have been much overestimated. Whether they be soaked in plain glycerin, or in solutions of ichthyol or other medicament in glycerin, appears to be immaterial. In any case to be of use they require to be inserted much more frequently than is customary. In fact, a daily application is necessary.

Local bleeding is, in some cases, beneficial,

especially where the cervix is chiefly involved. It is best done by puncture followed by warm douching, and needs to be repeated every second day until the congestion has decreased.

The application of leeches is quite inferior to puncture.

Intra-uterine medication is of more importance than any of the foregoing methods, and includes (1) the application of antiseptics, and (2) the application of caustics to the uterine cavity.

The "galvanocautery," the "thermocautery," and the "actual cautery" deserve no commendation; neither does "atmo-causis," for the application of steam to the endometrium is an unnecessarily severe and dangerous proceeding.

Curetting is, of all the methods of treating metritis, admittedly the best. It is, however, not generally recognized by the profession or by the public that the mere scraping of the uterus is not in all cases sufficient to effect a cure or even a marked amelioration of symptoms. The fact that metritis is often a very chronic and intractable complaint is lost sight of, and the patient is encouraged to hope that the operation "will make her right." Frequently it does not do so, and the operation or the operator is discredited. Now the truth is that in most cases of chronic metritis the curetting is merely the first step in a course of treatment which ought to be sufficiently prolonged to materially influence the disease. Curetting, therefore, requires to be reenforced by one or several of the other methods, as well as by the removal of complications if such exist. As at present carried out, the operation is preceded by cleansing of the vaginal and uterine cavities by antiseptic lotions, and followed by the application of caustics or styptics to the uterus for a comparatively short time, according to the views of the operator. The writer contends that patients should be taught to expect more prolonged subsequent treatment, both general and local; that, in fact, the treatment, like the disease, should be somewhat "chronic." Besides this question there are some others worthy of discussion, as they give scope for some difference of opinion, such as the "curette" to be used. Opinion as to whether it should be blunt or sharp still varies. The sharp one is preferred. With it a greater or less effect can be produced according to the amount of force used. The operator has thus a chance of using his discretion, which he has not when the instrument is blunt. The time at which the operation is done is, perhaps, not of much importance. Undoubtedly dilatation is easier immediately after a period, but, on the other hand, in cases of hemorrhage or dysmenorrhea, a good deal may be gained by curetting a week or ten days before the period. Certainly the latter time is the best for cases in which sterility is an important factor.

The question of anesthesia depends on the amount of dilatation needed, as well as upon the nervousness of the patient. The dilatation and not the scraping is usually the painful part, and some relief can be obtained by cocaine in ten-per-cent solution applied to the cervix and cervical canal for ten or fifteen minutes beforehand.

Preliminary vaginal antiseptics in the form of thorough douching night and morning with 1-in-2000 sublimate solution or other efficient agent, and two fingers in the vagina, is essential to safety. This can only be done by a specially trained nurse. Neither the patient herself nor an ordinary nurse can give a proper cleansing douche.

The operation may be performed with the patient on her left side, but the advantages of the dorsal position are so great that it should be universally adopted. It renders the operation both easier and safer. The steps of the operation afford little scope for controversy.

When the patient has been placed in position the vagina is scrubbed with soap and water and a tooth-brush, green soap which has been sterilized by heat being the best. An antiseptic douche follows this. The speculum is then introduced, the cervix lowered by a vulsellum, and the sound passed to ascertain the direction and size of the uterine cavity. If the canal is wide enough the curette may be used without dilatation. If not, the dilatation is best accomplished by long-handled dilators, such as Duncan's, because the length of the handle and the curve enable the instrument to be introduced with less disturbance of the uterus than the shorter ones, like Heger's, give rise to. Extreme dilatation is unnecessary, indeed, in most cases; dilatation beyond No. 16 of Duncan's instruments is accompanied by laceration, and should only be resorted to in cases of uncertain diagnosis where the introduction of the finger is essential. Dilata-

tion is followed by flushing of the cavity with an antiseptic solution, 1-in-2000 sublimate being the best. The curette is then applied, and with a sharp instrument the force must be modified to suit the state of the case in hand. The débris having been washed away through a double-channeled uterine catheter, the cavity is dried out with a strip of sterilized gauze and swabbed or injected with perchloride of iron or some preparation of iodine according to the amount of bleeding. Irrigation of the uterus and vagina follows this, and then a vaginal plug of iodoform gauze is inserted and allowed to remain for two or three days, when it is removed and vaginal douches given night and morning for a week. After this further treatment is unnecessary in cases of catarrhal metritis, but in the granular form intra-uterine injections of iodine every second day for eight or more times will be needed.

The danger of the curette nowadays is very slight, but certain accidents may occur. Perforation seems to be rather frequent. A good many instances have been published, and the accident has happened to most men who have performed the operation many times. It is most likely to occur when the exact curve of the uterine cavity is not continually borne in mind during the operation, hence the necessity for carefully passing the sound before commencing to dilate or curette. The accident is practically free from danger when the operator recognizes what has occurred and desists from further treatment. Hemorrhage seldom follows the operation in cases of metritis. It is more likely to succeed an imperfect curetting than a thorough one. Its importance lies in the fact that the possibility of its occurrence should deter us from being too ready to curette in our consulting-rooms. Peritonitis will only occasionally follow the operation when it is done intelligently.

Electrolysis is a tedious method of attaining ends which can be better compassed by other means, and has little to commend it.

Among the more recent things which have been used for gonorrheal metritis and vaginitis, the "yeast method" deserves mention; 10 to 20 cubic centimeters of fresh beer yeast mixed with a small quantity of beer is injected every day or every few days into the vaginal fornix, the vagina having been previously cleansed and dried. A tampon is subsequently introduced. Its efficacy depends on the antagonism of certain micro-organisms. It is no improvement on other plans of treatment.

In chronic cases, where there is evidence of old venereal disease, the application of mercurial ointment to the uterine cavity may be beneficial. It is applied apparently with advantage to the male urethra in cases of intractable gonorrhea with small urethral ulcers, and possibly it might be equally serviceable in the uterus.

The treatment of certain complications and sequelæ of metritis demands a passing notice.

Mucous polypi of the cervix may require removal by forceps or curette, with subsequent application of perchloride of iron or of the thermocautery.

The so-called "ulcerations" of the cervix often require prolonged treatment even after the uterus has been curetted. When they are recent, and there is not much thickening of the cervix, they will yield to curetting, followed by solid nitrate of silver for a few times, and subsequently by boric acid dressings. This produces a rapid change in the condition, and is superior to such remedies as tincture of iodine, weak nitric acid, chromic acid, chloride of zinc, acetic acid, pyroligneous acid, etc. On the other hand, for old standing erosions with much chronic thickening caustics are worse than useless. In such cases the excision of the diseased portion, followed by the union of the vaginal to the uterine mucous membrane, is the best treatment (Schroeder's operation).

A third set of cases includes those in which there are lacerations as well as erosions. According to the amount of thickening present these will demand repair of the lacerations in the less hypertrophied examples (Emmet's operation), or amputation of the cervix when the enlargement is more pronounced (Schroeder's operation).

DIAGNOSIS AND TREATMENT OF INTESTINAL PERFORATION IN TYPHOID FEVER.

MAUGER (*Jour. de Méd.*, May 25, 1901) has collected from literature the statistics of 107 cases of perforation in typhoid fever treated by operation, with twenty-five recoveries and a mortality of 23.3 per cent. Some of the chief symptoms of perforation are: (1) pain, variable in intensity but usually localized; (2) the pulse is frequent, compressible and of poor quality; (3) the tem-

perature either falls at the moment of perforation or else rises rapidly—both have been noted; (4) tympany is rarely absent, and muscular rigidity comes on early. In some cases the hepatic resonance disappears as the result of the leakage of intestinal contents through the perforation. Micturition is slow and painful, and chills are rarely absent. Vomiting may be delayed, but there is usually a rapid leucocytosis, with a marked increase in the number of the polynuclear leucocytes; they are practically absent in typhoid fever, but soon appear after the perforation. In some cases the blood examination may serve to confirm the diagnosis of perforation. The diagnosis is sometimes easy, often difficult, but rarely impossible. The best treatment is operative interference as soon as possible. The incision may be either a lateral or median one, after which the perforation is searched for, and when found it should be closed by Lembert sutures. The peritoneal cavity should then be thoroughly flushed out with either hot water, or better, with hot normal salt solution. The wound should be closed with ample provision for drainage.

SURGICAL DEVIATION OF THE BLOOD OF THE PORTAL VEIN.

SCIASSI *(La Semaine Médicale,* No. 19, 1901) states that this operation consists of the creation of a vascular anastomosis between the peritoneum and the muscles of the abdominal wall to relieve the portal vein of some of the blood that would otherwise, normally, go to it. This is accomplished by spreading out and fixing the great omentum upon the parietal peritoneum, beneath a flap composed of the skin, the superficial fascia, and the muscles of the abdominal wall. Briefly stated, the operation comprises the following steps: (1) Incision of the abdominal parietes and opening of the abdominal cavity; (2) the placing and fixing of the great omentum between the abdominal muscles and the parietal peritoneum; (3) suture of the musculocutaneous flap.

The author reports three cases in which he has performed this operation with success. The indications for the operation depend above all on the gravity of the case and the duration of the hepato-portal lesion. This operation will be found to be extremely valuable as a means of treatment of passive congestion of the liver, especially when it is performed early. In those cases where the cirrhosis involves the common vein, it is important to operate before marked connective tissue changes have taken place in the liver. The same is true in cases of biliary cirrhosis, and it is best to operate before enlargement, and to then drain the gall-bladder for a certain time. There are cases reported where this method of treatment has been followed by marked success.

The author states that in all cases the operation which he has proposed offers no more danger than a puncture for evacuation. By his method it is possible to thoroughly explore the abdomen, and when practiced with a good technique, it presents no difficulties or dangers, either immediate or remote. It is a palliative operation, usually prolonging the patient's life for some years.

ELIMINATING PERITONEAL INFECTION AND PREVENTING SURGICAL PERITONITIS.

CLARK, at the end of an admirable paper in the *Journal of the American Medical Association* of August 10, 1901, on eliminating peritoneal infection and preventing surgical peritonitis, presents these conclusions:

The peritoneum is capable of absorbing from three to eight per cent of the entire body weight in an hour.

Minute solid particles are carried in an incredibly short time from the peritoneal cavity through the diaphragm into the mediastinal lymph vessels and glands, and thence into the blood circulation. The blood quickly distributes them to the abdominal organs and to the bone-marrow.

The granular bodies are at first largely transported as free bodies, swept along by the lymph currents, but later the leucocytes act as the carriers.

There is normally a force in the peritoneal cavity that carries fluids and foreign particles toward the diaphragm, regardless of posture, although gravity may greatly favor or retard the current.

After introducing microorganisms into the peritoneal cavity, there is a great decrease in their number within the first hour, both through their intraperitoneal destruction and through their rapid absorption into the general system, where they are dealt

with. There is, therefore, no possibility of confining free infectious matter to any part of the peritoneal cavity by mechanical means.

Vigorous streptococci that remain behind develop within six hours a repellant or destructive quality for leucocytes, and the lethal combat is therefore begun and well under way before drainage, as ordinarily employed, can possibly exercise any beneficial action. In many cases, therefore, in which surgical drainage is employed, the patient recovers in spite of and not because of it.

A moderate amount of even virulent organisms, carried by the blood to the lungs, liver, spleen, kidneys, gastrointestinal tract, and bone-marrow, may be destroyed or eliminated without the least harm to the patient; but, if the same number of microorganisms are detained about a surgical field in the abdonimal cavity, or stagnate in a dependent pocket, they may generate myriads of others, and thus overwhelm the patient.

In many cases, therefore, drainage as ordinarily employed is superfluous, or even dangerous, and the rational method is to remove all possible débris and infectious matter by thorough irrigation, and then to leave one liter of salt solution—0.6 per cent—in the abdominal cavity; and, in order to promote and to hasten natural drainage, this should be supplemented by an enema of a liter of salt solution, given while the patient is well under anesthesia and in the Trendelenburg posture.

Under this plan the patient is greatly stimulated, shock is minimized or averted, the urinary excretion is greatly increased, and thus toxic matters are more easily eliminated without irritation to the kidneys or bladder, peritoneal infection is quickly eliminated while yet minimum in amount, thirst is alleviated or entirely prevented, intestinal peristalsis is promoted, and consequently tympanites is of less frequent occurrence, and the early action of the intestines evacuates infectious matter thrown out into this canal by the blood-vessels of the villi.

All these factors combined reduce mortality after abdominal sections, relieve pain, lessen discomforts and complications of the first forty-eight hours, and finally hasten the recovery of the patient.

The cases in which peritoneal infusions may be dangerous, and should not therefore be employed, are (*a*) ascites accompanying the surgical lesion, which indicates that the natural peritoneal drainage is already deficient—therefore to add an additional burden through the saline infusions is not advisable; and (*b*) general purulent peritonitis.

After a critical review of drained cases, Clark feels justified in greatly reducing the conditions in which gauze packing may be indicated. He does not believe that gauze is of any great service as a conducting medium; it appears to act as a plug to keep the external opening patulous and to prevent the closure of the drained area by normal granulation tissue. He believes that the evidence of the greatest skill is the absence of gauze packing or other surgical drainage, and he must be the most skilful surgeon who neglects to use gauze packing under the following conditions:

1. In appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, preventing a secure closure of the stump after amputation of the appendix, and when the appendix has ruptured and either caused a localized abscess or a general peritonitis. If the operation can be performed early, when the inflammatory process is confined to the dependent part of the appendix, *never* drain.

2. In localized collections of pus in the pelvis, either the abscess sac should be enucleated cleanly, and the abdomen closed without surgical drainage, or it should not be opened through the abdomen if it is too adherent to be enucleated safely. These cases are, *par excellence,* the ones for incision and drainage through the vagina.

3. A drain should only be employed in suture of the intestine when there is doubt concerning the integrity of the suturing.

4. In cases of excision of fistula leading from the intestines to the abdominal wall, it is safer to pack a gauze drain down to the sutured areas in the intestine.

5. In purulent peritonitis, as the usual avenues for the absorption of fluids from the abdominal cavity are closed, an endeavor should be made to supplement them by thorough irrigation of the abdominal cavity, and free drainage. The drain should be a large one, and, if necessary, in addition to a central opening in the abdomen, lateral openings in the flanks may be made. This method of treatment in these cases with grave prognosis gives the patient the best chance of recovery.

Wiggin, commenting on Clark's paper,

especially where the cervix is chiefly involved. It is best done by puncture followed by warm douching, and needs to be repeated every second day until the congestion has decreased.

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Intra-uterine medication is of more importance than any of the foregoing methods, and includes (1) the application of antiseptics, and (2) the application of caustics to the uterine cavity.

The "galvanocautery," the "thermocautery," and the "actual cautery" deserve no commendation; neither does "atmo-causis," for the application of steam to the endometrium is an unnecessarily severe and dangerous proceeding.

Curetting is, of all the methods of treating metritis, admittedly the best. It is, however, not generally recognized by the profession or by the public that the mere scraping of the uterus is not in all cases sufficient to effect a cure or even a marked amelioration of symptoms. The fact that metritis is often a very chronic and intractable complaint is lost sight of, and the patient is encouraged to hope that the operation "will make her right." Frequently it does not do so, and the operation or the operator is discredited. Now the truth is that in most cases of chronic metritis the curetting is merely the first step in a course of treatment which ought to be sufficiently prolonged to materially influence the disease. Curetting, therefore, requires to be reenforced by one or several of the other methods, as well as by the removal of complications if such exist. As at present carried out, the operation is preceded by cleansing of the vaginal and uterine cavities by antiseptic lotions, and followed by the application of caustics or styptics to the uterus for a comparatively short time, according to the views of the operator. The writer contends that patients should be taught to expect more prolonged subsequent treatment, both general and local; that, in fact, the treatment, like the disease, should be somewhat "chronic." Besides this question there are some others worthy of discussion, as they give scope for some difference of opinion, such as the "curette" to be used. Opinion as to whether it should be blunt or sharp still varies. The sharp one is preferred. With it a greater or less effect can be produced according to the amount of force used. The operator has thus a chance of using his discretion, which he has not when the instrument is blunt. The time at which the operation is done is, perhaps, not of much importance. Undoubtedly dilatation is easier immediately after a period, but, on the other hand, in cases of hemorrhage or dysmenorrhea, a good deal may be gained by curetting a week or ten days before the period. Certainly the latter time is the best for cases in which sterility is an important factor.

The question of anesthesia depends on the amount of dilatation needed, as well as upon the nervousness of the patient. The dilatation and not the scraping is usually the painful part, and some relief can be obtained by cocaine in ten-per-cent solution applied to the cervix and cervical canal for ten or fifteen minutes beforehand.

Preliminary vaginal antiseptics in the form of thorough douching night and morning with 1-in-2000 sublimate solution or other efficient agent, and two fingers in the vagina, is essential to safety. This can only be done by a specially trained nurse. Neither the patient herself nor an ordinary nurse can give a proper cleansing douche.

The operation may be performed with the patient on her left side, but the advantages of the dorsal position are so great that it should be universally adopted. It renders the operation both easier and safer. The steps of the operation afford little scope for controversy.

When the patient has been placed in position the vagina is scrubbed with soap and water and a tooth-brush, green soap which has been sterilized by heat being the best. An antiseptic douche follows this. The speculum is then introduced, the cervix lowered by a vulsellum, and the sound passed to ascertain the direction and size of the uterine cavity. If the canal is wide enough the curette may be used without dilatation. If not, the dilatation is best accomplished by long-handled dilators, such as Duncan's, because the length of the handle and the curve enable the instrument to be introduced with less disturbance of the uterus than the shorter ones, like Heger's, give rise to. Extreme dilatation is unnecessary, indeed, in most cases; dilatation beyond No. 16 of Duncan's instruments is accompanied by laceration, and should only be resorted to in cases of uncertain diagnosis where the introduction of the finger is essential. Dilata-

tion is followed by flushing of the cavity with an antiseptic solution, 1-in-2000 sublimate being the best. The curette is then applied, and with a sharp instrument the force must be modified to suit the state of the case in hand. The débris having been washed away through a double-channeled uterine catheter, the cavity is dried out with a strip of sterilized gauze and swabbed or injected with perchloride of iron or some preparation of iodine according to the amount of bleeding. Irrigation of the uterus and vagina follows this, and then a vaginal plug of iodoform gauze is inserted and allowed to remain for two or three days, when it is removed and vaginal douches given night and morning for a week. After this further treatment is unnecessary in cases of catarrhal metritis, but in the granular form intra-uterine injections of iodine every second day for eight or more times will be needed.

The danger of the curette nowadays is very slight, but certain accidents may occur. Perforation seems to be rather frequent. A good many instances have been published, and the accident has happened to most men who have performed the operation many times. It is most likely to occur when the exact curve of the uterine cavity is not continually borne in mind during the operation, hence the necessity for carefully passing the sound before commencing to dilate or curette. The accident is practically free from danger when the operator recognizes what has occurred and desists from further treatment. Hemorrhage seldom follows the operation in cases of metritis. It is more likely to succeed an imperfect curetting than a thorough one. Its importance lies in the fact that the possibility of its occurrence should deter us from being too ready to curette in our consulting-rooms. Peritonitis will only occasionally follow the operation when it is done intelligently.

Electrolysis is a tedious method of attaining ends which can be better compassed by other means, and has little to commend it.

Among the more recent things which have been used for gonorrheal metritis and vaginitis, the "yeast method" deserves mention; 10 to 20 cubic centimeters of fresh beer yeast mixed with a small quantity of beer is injected every day or every few days into the vaginal fornix, the vagina having been previously cleansed and dried. A tampon is subsequently introduced. Its efficacy depends on the antagonism of certain micro-organisms. It is no improvement on other plans of treatment.

In chronic cases, where there is evidence of old venereal disease, the application of mercurial ointment to the uterine cavity may be beneficial. It is applied apparently with advantage to the male urethra in cases of intractable gonorrhea with small urethral ulcers, and possibly it might be equally serviceable in the uterus.

The treatment of certain complications and sequelæ of metritis demands a passing notice.

Mucous polypi of the cervix may require removal by forceps or curette, with subsequent application of perchloride of iron or of the thermocautery.

The so-called "ulcerations" of the cervix often require prolonged treatment even after the uterus has been curetted. When they are recent, and there is not much thickening of the cervix, they will yield to curetting, followed by solid nitrate of silver for a few times, and subsequently by boric acid dressings. This produces a rapid change in the condition, and is superior to such remedies as tincture of iodine, weak nitric acid, chromic acid, chloride of zinc, acetic acid, pyroligneous acid, etc. On the other hand, for old standing erosions with much chronic thickening caustics are worse than useless. In such cases the excision of the diseased portion, followed by the union of the vaginal to the uterine mucous membrane, is the best treatment (Schroeder's operation).

A third set of cases includes those in which there are lacerations as well as erosions. According to the amount of thickening present these will demand repair of the lacerations in the less hypertrophied examples (Emmet's operation), or amputation of the cervix when the enlargement is more pronounced (Schroeder's operation).

DIAGNOSIS AND TREATMENT OF INTESTINAL PERFORATION IN TYPHOID FEVER.

MAUGER (*Jour. de Méd.*, May 25, 1901) has collected from literature the statistics of 107 cases of perforation in typhoid fever treated by operation, with twenty-five recoveries and a mortality of 23.3 per cent. Some of the chief symptoms of perforation are: (1) pain, variable in intensity but usually localized; (2) the pulse is frequent, compressible and of poor quality; (3) the tem-

perature either falls at the moment of perforation or else rises rapidly—both have been noted; (4) tympany is rarely absent, and muscular rigidity comes on early. In some cases the hepatic resonance disappears as the result of the leakage of intestinal contents through the perforation. Micturition is slow and painful, and chills are rarely absent. Vomiting may be delayed, but there is usually a rapid leucocytosis, with a marked increase in the number of the polynuclear leucocytes; they are practically absent in typhoid fever, but soon appear after the perforation. In some cases the blood examination may serve to confirm the diagnosis of perforation. The diagnosis is sometimes easy, often difficult, but rarely impossible. The best treatment is operative interference as soon as possible. The incision may be either a lateral or median one, after which the perforation is searched for, and when found it should be closed by Lembert sutures. The peritoneal cavity should then be thoroughly flushed out with either hot water, or better, with hot normal salt solution. The wound should be closed with ample provision for drainage.

SURGICAL DEVIATION OF THE BLOOD OF THE PORTAL VEIN.

SCIASSI *(La Semaine Médicale,* No. 19, 1901) states that this operation consists of the creation of a vascular anastomosis between the peritoneum and the muscles of the abdominal wall to relieve the portal vein of some of the blood that would otherwise, normally, go to it. This is accomplished by spreading out and fixing the great omentum upon the parietal peritoneum, beneath a flap composed of the skin, the superficial fascia, and the muscles of the abdominal wall. Briefly stated, the operation comprises the following steps: (1) Incision of the abdominal parietes and opening of the abdominal cavity; (2) the placing and fixing of the great omentum between the abdominal muscles and the parietal peritoneum; (3) suture of the musculocutaneous flap.

The author reports three cases in which he has performed this operation with success. The indications for the operation depend above all on the gravity of the case and the duration of the hepato-portal lesion. This operation will be found to be extremely valuable as a means of treatment of passive congestion of the liver, especially when it is performed early. In those cases where the cirrhosis involves the common vein, it is important to operate before marked connective tissue changes have taken place in the liver. The same is true in cases of biliary cirrhosis, and it is best to operate before enlargement, and to then drain the gall-bladder for a certain time. There are cases reported where this method of treatment has been followed by marked success.

The author states that in all cases the operation which he has proposed offers no more danger than a puncture for evacuation. By his method it is possible to thoroughly explore the abdomen, and when practiced with a good technique, it presents no difficulties or dangers, either immediate or remote. It is a palliative operation, usually prolonging the patient's life for some years.

ELIMINATING PERITONEAL INFECTION AND PREVENTING SURGICAL PERITONITIS.

CLARK, at the end of an admirable paper in the *Journal of the American Medical Association* of August 10, 1901, on eliminating peritoneal infection and preventing surgical peritonitis, presents these conclusions:

The peritoneum is capable of absorbing from three to eight per cent of the entire body weight in an hour.

Minute solid particles are carried in an incredibly short time from the peritoneal cavity through the diaphragm into the mediastinal lymph vessels and glands, and thence into the blood circulation. The blood quickly distributes them to the abdominal organs and to the bone-marrow.

The granular bodies are at first largely transported as free bodies, swept along by the lymph currents, but later the leucocytes act as the carriers.

There is normally a force in the peritoneal cavity that carries fluids and foreign particles toward the diaphragm, regardless of posture, although gravity may greatly favor or retard the current.

After introducing microorganisms into the peritoneal cavity, there is a great decrease in their number within the first hour, both through their intraperitoneal destruction and through their rapid absorption into the general system, where they are dealt

with. There is, therefore, no possibility of confining free infectious matter to any part of the peritoneal cavity by mechanical means.

Vigorous streptococci that remain behind develop within six hours a repellant or destructive quality for leucocytes, and the lethal combat is therefore begun and well under way before drainage, as ordinarily employed, can possibly exercise any beneficial action. In many cases, therefore, in which surgical drainage is employed, the patient recovers in spite of and not because of it.

A moderate amount of even virulent organisms, carried by the blood to the lungs, liver, spleen, kidneys, gastrointestinal tract, and bone-marrow, may be destroyed or eliminated without the least harm to the patient; but, if the same number of microorganisms are detained about a surgical field in the abdonimal cavity, or stagnate in a dependent pocket, they may generate myriads of others, and thus overwhelm the patient.

In many cases, therefore, drainage as ordinarily employed is superfluous, or even dangerous, and the rational method is to remove all possible débris and infectious matter by thorough irrigation, and then to leave one liter of salt solution—0.6 per cent—in the abdominal cavity; and, in order to promote and to hasten natural drainage, this should be supplemented by an enema of a liter of salt solution, given while the patient is well under anesthesia and in the Trendelenburg posture.

Under this plan the patient is greatly stimulated, shock is minimized or averted, the urinary excretion is greatly increased, and thus toxic matters are more easily eliminated without irritation to the kidneys or bladder, peritoneal infection is quickly eliminated while yet minimum in amount, thirst is alleviated or entirely prevented, intestinal peristalsis is promoted, and consequently tympanites is of less frequent occurrence, and the early action of the intestines evacuates infectious matter thrown out into this canal by the blood-vessels of the villi.

All these factors combined reduce mortality after abdominal sections, relieve pain, lessen discomforts and complications of the first forty-eight hours, and finally hasten the recovery of the patient.

The cases in which peritoneal infusions may be dangerous, and should not therefore be employed, are (*a*) ascites accompanying the surgical lesion, which indicates that the natural peritoneal drainage is already deficient—therefore to add an additional burden through the saline infusions is not advisable; and (*b*) general purulent peritonitis.

After a critical review of drained cases, Clark feels justified in greatly reducing the conditions in which gauze packing may be indicated. He does not believe that gauze is of any great service as a conducting medium; it appears to act as a plug to keep the external opening patulous and to prevent the closure of the drained area by normal granulation tissue. He believes that the evidence of the greatest skill is the absence of gauze packing or other surgical drainage, and he must be the most skilful surgeon who neglects to use gauze packing under the following conditions:

1. In appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, preventing a secure closure of the stump after amputation of the appendix, and when the appendix has ruptured and either caused a localized abscess or a general peritonitis. If the operation can be performed early, when the inflammatory process is confined to the dependent part of the appendix, *never* drain.

2. In localized collections of pus in the pelvis, either the abscess sac should be enucleated cleanly, and the abdomen closed without surgical drainage, or it should not be opened through the abdomen if it is too adherent to be enucleated safely. These cases are, *par excellence,* the ones for incision and drainage through the vagina.

3. A drain should only be employed in suture of the intestine when there is doubt concerning the integrity of the suturing.

4. In cases of excision of fistula leading from the intestines to the abdominal wall, it is safer to pack a gauze drain down to the sutured areas in the intestine.

5. In purulent peritonitis, as the usual avenues for the absorption of fluids from the abdominal cavity are closed, an endeavor should be made to supplement them by thorough irrigation of the abdominal cavity, and free drainage. The drain should be a large one, and, if necessary, in addition to a central opening in the abdomen, lateral openings in the flanks may be made. This method of treatment in these cases with grave prognosis gives the patient the best chance of recovery.

Wiggin, commenting on Clark's paper,

asserts that the low rate of mortality that Wiggin has had in his work has been due largely to the use of the saline solution and to peroxide of hydrogen. Humiston has not drained two per cent of his cases since the first publication of Clark's monograph.

Kelly has not used drainage of late, but in cases of septic foci that cannot be removed, or where there is burrowing, he walls off, or sequestrates, the infected area with a loose gauze pack, until the intestines have thrown out a protective barrier. Such a drain he leaves in six or eight days.

Baldy says that since he observed cases of Baer treated without drainage when every one else was draining, he has given up the drainage-tube. This was before leaving salt solution in the abdominal cavity was heard of. He never leaves fluid, and believes that the fluid has nothing to do with the result. Carstens holds that it is better to have the peritoneal cavity absolutely dry than to be throwing a quantity of fluid into it. Wathen has not drained through the abdominal incision, or in an abdominal operation, for three years. He has been scrupulously careful to wipe away all the fluid, whether blood or pus, that could be found, and has closed the cavity without drainage. He believes that thus he has had less peritonitis, less distention of the abdomen, a lower mortality, and patients get well more rapidly. Deaver is not at all in favor of doing away entirely with abdominal drainage. Gordon believes that an appendiceal abscess, as a surface abscess, should be drained. For a good many years he has not drained. He does not indorse Clark's idea of filling up the pelvic cavity with fluid, but he believes that a saline infusion allays the thirst and influences prompt action of the kidneys. Bovee points out that Clark simply advocates washing out the abdominal cavity with fluid, and leaving a small amount behind. Henry, after trying the saline solution, now walls off the pelvic cavity or appendix, wipes out the pus, flushes the cavity, dries it carefully, and closes it up. As to drainage, he believes it wise to drain when there is doubt. Kolisher asserts that, in experiments made in Schauta's clinic, the patients that became infected with virulent streptococci died, salted or unsalted. The only thing that can be gained from a rapid absorption of the saline fluid is an improvement of the action of the patient's heart, and a quicker elimination of toxins through the eliminatory organs. He does not believe in Clark's theory, method, nor the saline treatment. Watkins does not believe that it is impossible to localize septic matter in the peritoneal cavity, and that in the study of abdominal drainage the lymph current, if not of much importance as drainage, can have but little effect upon the lymphatics. Dudley has no difficulty in draining with iodoform gauze. Smith is of the opinion that drainage of the general cavity is not only useless but harmful. When there is a walled-off cavity that is septic it should be drained, or, rather, it should be packed with iodoform gauze, which serves the double purpose of absorbing the septic contents of the circumscribed cavity, and of stimulating the walling-off process.

TREATMENT OF PSOAS ABSCESS BY INCISION.

A group of cases of psoas abscess, covering a period of ten years, in the Children's Hospital, Boston, has been studied by LOVETT *(Boston Medical and Surgical Journal,* May 16, 1901), to ascertain the value of treatment by incision.

Of the 54 cases, 32 were boys, 21 were girls, and the sex of one case is not stated. The age ranged from two and one-half to fourteen years. The location of the vertebral disease was as follows: dorsal, 11; dorsolumbar, 17; lumbar, 23; not given, 3 cases. The abscess was on the right side 21 times, on the left side 24 times, 4 times on both sides, and in 5 cases the situation was not definitely described. The temperature before operation was high in 12 cases and practically normal in 37; its character was not indicated in 5 cases. The modes of operation were a simple incision in the iliac region, a simple incision in the lumbar region, or an incision in both regions. With regard to recumbency after operation, in 45 cases, where the notes kept were definite, the period was as follows: Two to four days, 4 cases; two weeks, 3 cases; two to four weeks, 8 cases; one to two months, 19 cases; two to seven months, 11 cases. Nephritis caused death in 5 cases, tuberculous meningitis in 2 cases, and 1 case died suddenly, probably from a thrombus. The cause of death in other cases could not be ascertained definitely. Of the 49 operative cases, 17 are known to have died; 26 were alive in the early winter of 1900-1901, and the results were not known in 6 cases. The sinuses are

open in 9 of the 26 cases, and closed in the other 17 cases.

As far as mortality and functional results are concerned, these seem to make it appear a justifiable operation not attended with an unreasonably high percentage of mortality in a disease whose death-rate is high without operation.

The practical conclusions of Lovett's paper are that fever is not necessarily an accompaniment of psoas abscess formation; that where it does occur the prognosis is not so good as where it is absent; that the best method of operating is by a lumbar or by an iliac incision, preferably the latter. On general principles it seems best to avoid recumbency for long periods, and this, of course, makes drainage by an iliac incision almost impossible. It seems, therefore, best to put on a plaster jacket almost immediately after the operation to enable the patient to sit erect and to enable the abscess to drain almost from the first. In this way Lovett has obtained better results than by any other method.

TREATMENT OF ACNE.

BROWNLIE *(New York Lancet,* May, 1901) finds that ichthyol is very beneficial both in acne vulgaris and acne rosacea. The best results are obtained when external and internal treatments are combined. In some cases of acne rosacea in which the skin is too thin and irritable to bear even weak solutions, the internal administration of ichthyol alone, with steaming, will be sufficient.

Brownlie generally begins with five grains of ichthyol thrice daily after food, increasing the amount to 10 grains. Every night and morning the face is steamed for fifteen minutes, and is then washed with ichthyol soap. The lather is allowed to dry on the face, after which it is gently washed off with water. After each washing ichthyol salve, if it can be borne (often combined with ammoniated mercury), is applied.

In acne vulgaris, after steaming, strong sulphur and ichthyol soap is used with brisk rubbing with a flesh-glove.

The diet is regulated. Ichthyol itself relieves mild cases of constipation; but, if it does not, a compound pill of iridin and euonymin or podophyllin may be given.—*Monthly Cyclopedia,* July, 1901.

FIRST SYMPTOMS OF ACQUIRED SYPHILIS.

DESCHAMPS *(Bull. de l'Acad. Royale de Méd.,* No. 3, 1901) states as the result of his observations:

(*a*) That syphilis, from the moment the virus begins to act at the site of the primary sore, takes in its evolution exactly the same course as the vaccinia: (1) Itching, sometimes intolerable, but never absent; (2) diffuse redness, sometimes confined to a small area, at the same time as the pruritus; (3) the formation of a small, reddish papule; (4) then a vesicle, a little larger than the papule, the liquid from which soon dries and forms a scab; (5) next a pustule which is surrounded by a small inflammatory area —then follows healing as in vaccinia; (6) on this follows a depressed wound with a protruding border and induration; (7) finally the typical indurated chancre.

(*b*) That the abortive treatment should prove successful if instituted at the onset; it has proved efficacious even when instituted as late as the vesicle period.

(*c*) That abortive treatment is absolutely useless, as experience has shown, when instituted in the pustular period.

(*d*) That reinoculation alone may possibly make this demonstration of the abortive treatment absolute.

TREATMENT OF INTESTINAL OBSTRUCTION WITH THE BELLADONNA PREPARATIONS.

GATHGENS *(Münchener Med. Woch.,* April 23, 1901) reports the case of a woman, aged sixty-four years, that presented herself for treatment with the characteristic symptoms of acute obstruction. She was immediately given a hypodermic injection of .003 grain of atropine sulphate; this was followed six hours later by a second injection of .002 grain of atropine. Three hours later the patient passed wind and feces. On the following day, as the patient complained of pain in the left iliac region, with some stiffness of the rectus muscle on this side, she was given .015 grain of the extract of belladonna every four hours. After six doses the rectus muscle entirely relaxed, and the patient had a large stool. On the following day she spontaneously passed feces and flatus, and soon afterward was discharged cured.

PLEURAL AND PERIHEPATIC COMPLICATIONS OF APPENDICITIS.

LAPEYRE (*Rev. de Chir.*, Nos. 4 and 5, 1901), from the standpoint of anatomy and pathology, concludes as follows: (1) Pleurisy, secondary to appendicitis, always involves the right side; (2) it is always secondary to a subphrenic abscess and never occurs alone; (3) the perihepatic abscess is always primary, and bears no relation to the involvement of the pleura.

The extension of the lesion from the right iliac fossa to the diaphragm is always uninterrupted.

Autopsies have shown: (1) Inconstancy in the degree of the lesion of the appendix, and inconstancy in the relation of the retrocæcal fossa to the appendix; (2) that the retrocæcal fossa, when enlarged, always extends without interference in the direction of the parieto-colic zone, as far as the liver or pleura; (3) that suprahepatic and subphrenic abscesses are never the result of metastasis, but are always the result of extension by continuity.

The perihepatic abscess is only a consequence of intrahepatic infection. The subphrenic abscess and the hepatic lesions are absolutely distinct and not associated; except in the case of pyemia, the course of the infection is totally different in the two cases. In the case of the liver, the portal vein is without doubt the vehicle of infection. The pyelophlebitis is primary, and it follows along the ramifications of the portal vein. The subphrenic abscess and the pleurisy are completely independent of the hepatitis, and the infection may extend to the diaphragm and pleura from the appendix in any one of three ways: (1) By the cellular tissue; (2) by the parietal lymphatics; (3) by the peritoneum.

The symptoms of the supra- and subphrenic complications of appendicitis are at the onset those of an acute attack of appendicitis—pain at McBurney's point, vomiting, constipation, elevation of pulse and often of temperature. These complications bear no direct relation to the intensity of the lesion in the appendix, and they are just as likely to follow a simple case of parietal appendicitis as they are to follow one that has gone on to perforation. Often at the end of forty-eight hours after the onset of the appendicitis the peritoneum becomes involved, and, after that, the complications are soon evident. The hepatophrenic phase does not succeed brusquely to this peritoneal extension, but is preceded by the symptoms of localization in the right iliac fossa, then by involvement of the right side of the abdomen, up to the hypochondriac region. In all of the reported cases this intermediate phase has been characterized by a zone of pain, by profound resistance, by pitting on pressure, and by absence of resonance, beginning in the right flank and gradually extending to the hypochondrium. This extension is characterized by elevation of temperature and pulse, and a sensation of general malaise, either with or without vomiting.

The hepatophrenic phase or stationary period lasts from four to eight days, and corresponds to the development of the subphrenic abscess that precedes the pleurisy. All the general symptoms are accentuated, the facies becomes shriveled, there is marked respiratory anxiety, and the fever varies between 38.5° and 39.6° C., with evening exacerbations; the pulse is of poor quality, small, rapid, and compressible. In some cases the fever is but slight and not in proportion to the degree of extension of the disease or the size of the purulent focus. The pain is violently sharp, with its maximum intensity at McBurney's point, and it is increased by all movements of respiration. In nearly all of the reported cases the pain has radiated to the right shoulder, a point of great diagnostic importance. The dyspnea is marked, with palpitation of the alæ of the nose, and there is marked tendency to cyanosis. As a rule the respirations are very superficial. The pain accentuates the dyspnea and forces the patient to remain in the dorsal position. An incessant dry cough and a "stitch in the side" are early symptoms. These do not indicate that pleurisy is present, but only show that the inflammation has reached the diaphragm. As a rule, these symptoms may be noted before there is any involvement of the pleura. Their presence is not enough to precisely locate whether the abscess is supra- or subphrenic. Hiccough, which may be persistent, and jaundice may be inconstant symptoms. The physical signs vary as to whether the abscess is supra- or subhepatic. The symptoms of the subhepatic variety are edema of the abdominal wall, enlargement of the subcutaneous veins, marked tumefaction below the false ribs, and sometimes fluctuation. In the suprahepatic variety, which is much the more frequent, there is no edema and no tumefaction beneath the false ribs; there is,

however, a marked induration, extending from the right iliac fossæ to the hypochondrium, involving all of the right side of the abdomen. Auscultation and percussion over the right chest give signs that are very analogous to a purulent pleurisy.

The pleural phase is easily confused with the preceding, and it is impossible to determine exactly just when it begins. Soon, however, there is a new aggravation of all the general symptoms and the fever becomes hectic. In some cases a "stitch in the side" in the region of the nipple has been noted. The pleuritic souffle and egophony may usually be noted as additional physical signs. In the case of pyopneumothorax the souffle is amphoric, and the hippocratic succussion splash may, as a rule, be easily observed. The prognosis is very grave, death usually resulting in from fifteen to thirty days, unless there is prompt surgical interference. The diagnosis is difficult, and it is sometimes impossible to accurately determine whether the purulent collection is in the thorax or in the abdomen; when the abscess is subhepatic it is relatively easy to establish the abdominal site of the purulent collection by the fact that cough and dyspnea are absent, pain is less severe, does not radiate toward the right shoulder, and the signs of the purulent collection are quite clear, being limited to that part of the thorax lying beneath the false ribs. There is no absence of resonance, no alteration in the vesicular murmur, no souffle nor egophony. It is extremely difficult to discover whether the abscess is peri- or intrahepatic. The type of the fever is the symptom that makes the diagnosis. In the intrahepatic abscess the type of the fever is frankly intermittent, while in the subhepatic abscess the fever is of a simple type. When the abscess is suprahepatic, the diagnosis as to whether the abscess is still confined below the diaphragm or has extended to the pleura is always difficult. Subphrenic abscess gives practically the same symptoms as pleurisy—pain, dyspnea, etc., are identical in the two cases, as are also the physical signs.

The ideal treatment of subphrenic abscess is a preventive one—that is, the removal of the infecting appendix at the onset of its inflammation. When the perihepatic or pleural complications have developed, operation is indicated, and the surgeon may reach the abscess by either the incision of Roux (opening the retrocæcal fossa) or by a double incision in the hypochondrium and the hepatic region. If the diagnosis of purulent pleurisy is surely made, it is best to first perform laparotomy and then to evacuate the empyema. The mortality of these operations is high, and it is the best indication that the most desirable treatment consists in the removal of the appendix in the first symptoms of an acute attack.

CHRONIC CONSTIPATION AND THE ILEOCAECAL ORIFICE.

An operation for the relief of chronic constipation that may be practical in some cases has been performed successfully by MAYO (quoted in *Boston Medical and Surgical Journal,* May 16, 1901) in two cases. He excised a part of the cæcum, after the Heincke-Mikulicz pyloroplasty, making a large increase in the size of the aperture between the ileum and the cæcum.

Mayo believes that one of the many functions of the ileocæcal opening is to prevent the too rapid emptying of the small bowel, and to maintain some pressure against peristalsis until the process of small bowel digestion is properly finished.

RESULTS OF RADICAL OPERATION FOR CANCER OF THE RECTUM.

In 881 cases of excision of the rectum for cancer, KROCHLEIN (quoted in the *Boston Medical and Surgical Journal,* May 16, 1901) has found that eighty per cent are reported curative. In fourteen per cent the cure is said to be permanent. The best functional results are obtained when the resected gut is fixed at its normal site, and when the sphincter and anus are preserved. The perineal method is suitable in some cases. The sacral is most suitable for high-seated cancer.

Kraske has obtained satisfactory results in 120 cases by the sacral method. A more radical procedure is the combined abdominal and sacral methods. The abdomen is opened, and the superior hemorrhoidal artery is tied to permit a bloodless section. The mesocolon and mesorectum with their glands are removed. The usual sacral operation is then done.

Hochenegg emphasizes the necessity of preserving the sphincter if incontinence is to be prevented. He recommends denuding the retained anal segment of its mucous

membrane, and anchoring the proximal segment of the bowel in its grasp.

Wölfler attributes failure to prevent incontinence to the disturbed innervation of the tissues involved in the operation.

OMENTAL FIXATION FOR RELIEF OF ASCITES FROM HEPATIC CIRRHOSIS.

The following anastomoses have been found in dogs by injection by KUSNETZOW (quoted in the *Boston Medical and Surgical Journal*, May 16, 1901): Numerous ones between the veins of the stomach wall which empty into the superior gastric vein; and those which empty into the large vein along the greater curvature; a direct connection between the vena gastroduodenalis and duodenojejunalis, and an anastomosis between these two and the portal vein trunk through the pancreatic veins; anastomoses between the neighboring veins, which on one side open into the large and on the other side into the small mesenteric veins.

These anastomoses permit the passage of the blood in case of ligature of the portal vein from the part below to that above a ligature of the portal vein.

Kusnetzow is convinced that ascites due to impeded portal circulation may be treated with excellent results by omental fixing. Without previous omental fixing, it has been found that complete ligation of the portal vein rapidly causes death, and that omental fixing enables animals to bear a double ligating of the portal vein—a complete one in its middle part (above the entrance of the gastrolienalis), and an incomplete one near its entrance to the liver. Complete ligating below the vena gastrolienalis caused death in a few hours even after previous omental fixing. The incomplete ligating of the portal vein in its middle part caused stasis, ascites and bloody diarrhea that was transitory. Kusnetzow also found that the superficial epigastric veins dilate markedly after omental fixing, resembling the "caput medusæ" seen with hepatic cirrhosis.

ACCIDENTAL INOCULATION OF CANCER IN A FRESH WOUND.

An experience emphasizing the importance of taking great care, during the removal of a cancerous growth, to go wide of the disease to prevent inoculation is related by CABOT (*Boston Medical and Surgical Journal*, May 16, 1901).

The patient was a man of fifty-nine, with a cancer high up on the anterior wall of the rectum. An opening was made through a Kraske incision into the rectum posteriorly. The cancer was dragged down into this opening and removed through it. During this manipulation the cauliflower-like juicy growth was rubbed about in close contact with the wound made by the Kraske operation. Two months after the first operation a second was done for closure of the posterior opening in the rectum. Healing occurred by first intention, and the patient remained well for about two years. At the end of this period a hardening of the tissues behind the rectum was noticed. There was removed by operation a mass about as large as an egg, flattened in the anteroposterior diameter, and extending from the mucous membrane of the rectum backward along the sacrum, to which it was firmly attached. After a thorough examination this condition was diagnosed as adenocarcinoma with colloid degeneration. Since this last operation there have been cut out little bits of hardened tissue in the scar.

The scar in which the recurrence took place was separated by an interval of five or six inches from the original seat of the growth, and the tissues between them remained healthy. Plainly, therefore, there was not a direct extension of the disease. The lympathic vessels from the seat of the original disease run upward to the lumbar glands. This anatomical relation, together with the absence of any lympathic structure in the recurrent nodule, removes, according to Cabot, any suspicion of this having been a secondary growth. The conditions, however, were favorable to transplantation, as the cancer, torn and squeezed by forceps, was rubbed for several minutes into the fresh wound.

TREATMENT OF AN IRREDUCIBLE DISLOCATION OF THE INFERIOR MAXILLA.

KRAMER (*Centralblatt für Chirurgie*, No. 14, 1901) reports the case of a girl that presented herself for treatment five weeks after the accident. The dislocation being irreducible, operative interference was decided upon for its relief. The author made a horizontal incision on the under rim somewhat forward from the middle of the zygomatic

arch, then upward, the last incision being only through the skin, partly loosening the masseter muscle from its attachment. There was then a thorough separation of the much stretched fibers of the outer lateral ligament and the external pterygoid muscle. On exposing the capsule of the joint, it was found to be uninjured. The dislocation was reduced, and the wound was closed without drainage. The patient made an uninterrupted recovery and regained the full use of the joint.

TREATMENT OF INTESTINAL OBSTRUCTION.

MAURANGE *(Gaz. Hebdom. de Méd. et de Chir.,* June 23, 1901) states that the first rule in the treatment of acute obstruction should be to prevent the giving of purgatives and forced lavage. The medical treatment of acute cases may be by opium, belladonna, applications of ice to the abdomen, immobility in bed, diet practically absolute, and the injection of salt solution. The indications for opium are: (1) To moderate peristalsis; (2) to overcome spasm; (3) to combat meteorism. It may be given by the mouth in the form of the extract, or hypodermically as morphine. If the latter method is chosen, it is best to combine it with sparteine. Atropine has been suggested as a valuable drug to combine with the morphine in those cases where the vomiting is severe, but the author is opposed to its use because of the inhibitory action of this alkaloid upon the secretions. Objection has been raised to the use of opium for the reason that it tends to mask the symptoms and cause falsely a sense of security. This danger is easily avoided if one carefully watches the pulse, facies, vomiting, the degree of meteorism, and the passage of wind. Immobility in bed, opium, and low diet tend markedly to moderate the peristalsis; ice applied in large quantities over the abdomen combats the tendency to peritonitis and infection of the intestinal mucous membrane. Even when meteorism is extreme, capillary puncture is absolutely contraindicated, as it is very likely to be followed by peritonitis.

Lavage of the stomach is a palliative and valuable adjuvant in the treatment of acute obstruction. It immediately stops the vomiting, and prevents its recurrence, by evacuating all the accumulated toxic material, which otherwise would be absorbed and produce profound depression. The lavage should not be persisted in until the patient is fatigued; it is absolutely contraindicated in those patients who are very weak. Lavage under pressure, or the insufflation of the rectum with air or hydrogen, and abdominal massage, are dangerous, and should carefully be avoided as a means of treatment. Electricity (one pole in the rectum and the other on the surface of the abdomen) may be tried, and sometimes with success, soon after the onset of the obstruction. It is contraindicated in those cases with a weak heart or where there are symptoms of a beginning peritonitis. Its effect has been most marked in those cases of pseudo-obstruction, and occasionally in paralysis of the ileum.

The author reaches the following conclusions in regard to the surgical treatment of acute obstruction: (1) That laparotomy is the operation of choice in young and resistant patients operated on soon after the onset of the obstruction; (2) that enterostomy should be reserved for those patients enfeebled either by age, a prolonged medical treatment, or some anterior abdominal operation, who have reached the last degree of fecal intoxication, or in whom the presence of cachexia points to the presence of cancer. There is little doubt as to what is the operation of choice in cases of imperforate anus, strangulated hernia, invagination, obstruction in the course of a tuberculous peritonitis, or as a complication of an abdominal tumor. In the treatment of paralysis or ileus, it is best to try electricity (as above) twice, at twelve-hour intervals, before proceeding to do a laparotomy. Simple opening of the abdomen sometimes suffices to produce a complete cure in these cases.

The diagnosis of chronic obstruction is usually easy; the primordial cause is generally constipation. Obstruction by feces is best treated by purgatives (castor oil); the saline and drastic purgatives are contraindicated in these cases. The use of electricity has been followed by brilliant results. When given after the fecal mass has begun to break up, high enemas are a useful adjuvant. Abdominal massage, or hot or cold compresses to the abdomen, have also been found useful. It is most important to discover the cause of the fecal stasis; it may be syphilitic or cancerous in origin. If the former, specific treatment is indicated; if the latter, enterostomy or colostomy should be performed, depending upon the limits of the tumor and the general condition of the patient. When the patient is markedly

cachectic, it is usually better to establish an artificial anus in the iliac region than to perform a radical operation.

SUBCUTANEOUS RUPTURE OF THE LIGAMENTUM PATELLAE TREATED BY SUTURE.

BLAUEL *(Beitrage zur Klin. Chirurgie,* Bd. 29, Heft 2) on the basis of a clinical experience of three cases, and a study of the not very copious literature on this subject, strongly advises that rupture of the ligamentum patellæ should be treated by immediate suture, since healing is more prompt and more assured than by the more conservative procedure of splinting.

DRY METHOD IN SURGERY.

The dry method in surgery is one in which no fluid is used after the operation is begun. All sponging is done with pledgets of gauze used entirely dry. The wound is, under no circumstance, douched or washed out with any kind of solution, even where pus is present. WALKER *(Gynecological and Obstetrical Journal,* August, 1901) for some time has operated exclusively by this method, excepting a few cases that hardly merit mention. In the last five years he has treated many puerperal uteri by the dry method, and regards this treatment as more safe and satisfactory than treatment by irrigation. In his abdominal work Walker has employed irrigation in only a few cases, and these he believes would have been better without it. He no longer has any doubt that thorough aseptic work can be done by a technique from which all fluids have been excluded.

He repeats that in clean cases all that is to be feared is the skin of the patient, and the hands of the operator and those of his assistants. With, therefore, a thorough system of hand-cleaning and disinfection, with boiled instruments and sterilized sponges and ligatures, there is safety in clean cases. The wound should be kept clean and dry, and it should be left in the best condition to resist infection to favor speedy healing. The control of hemorrhage is the first thing, and dry sponging and packing with dry gauze does this much better than the same moistened with water or any other fluid. After catching the bleeding points with forceps, a little pressure with dry gauze will control all hemorrhage and leave the wound perfectly dry.

Walker holds that all that can be done in many septic cases is to remove by operation the dead parts, clean off the pus and detritus, and, by providing thorough drainage, give nature a chance to resist further invasion of the hordes of germs that the operator is forced to leave in the tissues. This cleansing Walker believes can be better accomplished by wiping with dry gauze, with much less damage to the parts, than by moist sponging or irrigation.

In vaginal and intra-uterine work the dry method fully meets all requirements. Walker has not used continuous irrigation during plastic operations for twelve or fourteen years, and he has had suppuration rarely. Most of this period he has used only dry sponging. Curettings for endometritis, abortions, and even the large puerperal uteri are treated in the same way. He first uses a dull curette carefully and gently in all, and then wipes out with sterile gauze until it comes out clean. For non-puerperal endometritis he uses iodoform gauze, packing for from four to six hours only. In abortions and puerperal cases, Walker prefers to pack with plain sterile gauze after wiping, because it is more absorbent. In these cases a large quantity of gauze is used, packing the uterus very full, and this is removed in from four to six hours. At first it is a good drain, as it takes up all the moisture, but as soon as the meshes become clogged it acts as a plug, obstructing instead of favoring discharge. In these cases, excepting vaginal douches, Walker does not use a drop of water. He looks on irrigation as not only unnecessary but dangerous.

For intro-uterine work Walker uses gauze prepared in three sizes, packed in glass tubes; one or another is used according to the size of the uterus. No one touches the gauze. It is packed directly from the tube into the uterus. This simple device he has found of great advantage.

He does not assert that all cases of puerperal fever are cured by wiping out the uterus; it is only in those in which the trouble is confined to the endometrium that relief can be given. When the infection has invaded deeper parts, more radical measures are required.

In the past two years Walker has performed at his sanitarium 262 operations on 234 patients, with a mortality of five. There were 163 clean cases, and in two of these

there was suppuration in the wound; the remainder of the cases, 161, healed absolutely aseptically. The infected cases were in all 71 in number, and of these there was no suppuration afterward in 47, and 24 were septic after the operation. Of the total number 72 were laparotomies, the remainder being general surgical cases, including breast incisions, herniotomies, craniotomies, bone cases, amputations (one at the hip), plastic operations, curettage, etc.

OPERATIVE TREATMENT OF ACUTE ILEUS.

LILIENTHAL *(Medical Record,* Aug. 31, 1901) has operated, since 1893, on thirty-four patients for intestinal obstruction, and has forty-one per cent of recoveries. Besides these operations he has had the opportunity to direct the treatment of a number of other cases that were operated on in his service. From this experience he has formed certain ideas concerning the operative treatment of acute ileus. The stomach should be washed out before operating, preferably before beginning the administration of the anesthetic. In the most desperate cases no general anesthetic should be employed. A small incision should first be made in the right iliac region; if it is at once obvious that the key to the difficulty is situated at that place, the wound should be enlarged and the operating proceeded with; but if the exploring proves negative, a long median incision should be immediately made. If a strangulation exists, the patient must not leave the table until it has been relieved. The possibility of the existence of more than one obstruction must be ever present.

Enterostomy or colostomy should be performed only when there is the greatest danger that the patient may die if the operation is prolonged. Lilienthal, however, would make one exception to this rule, and that is in cases of acute ileus from chronic obstruction in the large intestine with enormous distention. Here it is best to perform colostomy as a means of temporary relief, with the hope of something more radical in the future.

In making an artificial anus, the operator must be certain that the opening is above the occlusion.

Gangrenous intestine should be at once resected.

When there is great distention of the small intestine, a sufficient number of small incisions opposite the mesentery should be made to evacuate as much as possible of the gaseous and liquid contents of the gut before searching for the obstruction. Kocher has pointed out that the greatest danger in ileus is in absorption from the gut.

Before having heard of systematic enterotomy, Lilienthal began treating the distended intestine in this manner, both in cases of true obstruction before searching for the lesion, and in the distention of peritonitis. He has continued to practice this treatment in suitable cases, and has found nothing but good that could be attributed to it. He has never noted a leak at the points of suture of the little openings.

There is rarely, if ever, any advantage, says Lilienthal, to be gained by administering cathartics after the strangulation has been relieved, and this is especially the case when there has been a copious discharge of intestinal contents through punctures or incisions.

The doctor is convinced that exhaustion due to delay and to the persistent employing of purgatives is to blame for the majority of deaths that have come under his notice. He takes the stand that when a patient has recovered after internal medication, or massage and electricity, it is illogical to jump at the conclusion that an operation would have had a less fortunate result. Every recovery without surgery signifies that the disease was not a surgical one; while practically every death after operation means that medicine has failed, and that surgery has finally been invoked to make the best of a bad case.

GOLD-BEATERS' SKIN COURT-PLASTER AS A DRESSING FOR OPERATIVE WOUNDS.

For a number of years DAY *(Gynecological and Obstetrical Journal,* August, 1901) has been using gold-beaters' skin court-plaster as a dressing for operative wounds with exceedingly satisfactory results. He says that it is aseptic, antiseptic, and impervious to germ life; that it is thin and pliable, transparent, fibrous, and adherent; that it forms a light and comfortable dressing; and that it is readily removed by applying moisture.

After Day sutures a wound the surface of the skin about it is saturated with an anti-

septic solution. A dry strip of plaster about three inches wide is then fitted over the wound. The outside of the plaster is then thoroughly saturated with the solution. Bubbles of imprisoned air are pressed out to the edge of the plaster at the same time. In a few minutes the plaster is dry. It is Day's practice, in dressing laparotomy wounds, to apply a strip of adhesive plaster, one inch wide and twelve inches long, transversely across the wound and abdomen to prevent undue tension on the stitches during the vomiting period. Over all is applied a layer of absorbent cotton to take up whatever drainage may occur.

Should there be any bloody, serous, or other discharge from the wound, the isinglass of the most dependent part of the plaster is softened, and the discharge is carried by gravity and capillary attraction to the edge of the plaster and absorbed by the cotton. As soon as the discharge ceases, the plaster dries and the wound becomes hermetically sealed. After about three days, when vomiting has ceased and union has begun, it is Day's custom to remove the adhesive strip, and if any dry blood is seen under the plaster, to wash off the plaster and wound with an antiseptic solution. The wound is then dressed with a new plaster as before, this forming a dressing absolutely safe against infection, and incomparably more comfortable than the loads of material usually applied.

Day has always sutured the tegumentary wound, but should it be desired to approximate the skin surfaces of the wound without sutures, he can conceive of no better material than gold-beaters' skin court-plaster for that purpose.

"INOPERABLE" RECURRENT CANCER OF THE BREAST; RELIEF BY BEATSON'S METHOD.

Led by Beatson's success in treating recurrent mammary cancer of an inoperable character by removal of the ovaries, ABBE (*New York Medical Journal*, Aug. 3, 1901) adds to the forty cases collected by Boyd seven that have come under his own observation. Two of these seven cases of Abbe were notably successful, but the operations on the other five patients, though apparently successful, took place so recently that he does not care to accept the results already obtained as conclusive. Abbe remarks that Boyd notes comparative success in thirty-five per cent of the cases in which oophorectomy has been performed, but observes also that little attempt had been made at selection.

The first case in which Abbe ventured to do a double oophorectomy was that of a woman, forty-two years old, who had been operated on ten months before for very malignant carcinoma of the breast. Then a complete operation was done, the axillary lymphatics being removed, but recurrence took place in six months. Such was her deplorable condition at the end of ten months that operation could not be thought of. The supraclavicular glands were also involved. Abbe then removed the full-sized ovaries, which were apparently normal, the left (corresponding to the side of the original tumor) slightly adherent. In one week changes were noticed in the nodules nearest the scar of the first operation. In two weeks most of the nodules were becoming pale and flattened. In four weeks most of the nodules had disappeared. At eight weeks every vestige of cancer that had been left was gone, and the involved scar showed atrophy where the nodules had been. The fluid in her chest had not yet diminished. Four months after the removal of the ovaries the patient remains absolutely well. The fluid in the chest is subsiding, and causes no concern.

The second case was that of a woman seventy years old, whose breast had been removed two years before for typical cancer, with a recent recurrence consisting of six nodules, three of them large, of the size of the end of a finger, and three of them small, and subcutaneous. There was also a large malignant ulcer. It would have been impossible to remove the ulcer without resecting the ribs and pleura. It was nothing or oophorectomy. The ovaries were found to be atrophied and apparently normal. To Abbe's surprise, the same retrograde changes that took place in the first patient began in the malignant tissue after the end of the first week. During the third week cicatrization began, and the ulcer acted in every way like a most healthy, healing ulcer. No medicine was given to the patient. The wound was simply washed with boric acid, and some rubber tissue was laid upon it. At eight weeks cicatrization of the ulcer was complete. During the third week the nearest nodule began to flatten; at the fourth week it had become umbilicated. At eight

weeks it presented the appearance of a ring where the original nodule appeared. The larger nodules were also growing paler and flatter. Three and a half months after the operation the patient was in perfect health. The nodules showed less rapid progress, but were still slowly wasting in thickness, though covering the same area.

A number of recurrences have been seen many months after an apparent cure by oophorectomy, but at least one case had continued for more than three and a half years without return. It is probable that the patients operated upon before the menopause will show the largest percentage of change, but the same effect seems to follow in patients as old as seventy years. In most cases reported there was a striking improvement in general health after the operation.

CANCER, PARTICULARLY CUTANEOUS CANCER.

The tendency is becoming more marked, observes ALGER *(New York Medical Journal*, Aug. 3, 1901), to restrict the term "cancer" to those anomalies of growth that are malignant and that originate in epithelial cells. The term "malignant" is now generally applied to growths that have a potential capacity for recurrence or metastasis.

Cutaneous cancer, like other varieties of the same disease, occurs most commonly in persons of middle life, being rare before forty. It is several times as common among men as among women, and of the total number of cases, by far the larger part occurs on the face, favorite locations being the lower lip and the regions about the wings of the nose and the eyes. Frequently the site has been occupied by some benign growth, such as a wart or a mole, and many times there is a history of constant, long-continued irritation of the part by picking or shaving, a fissured lip kept open by the stem of a pipe, or a mole on the forehead constantly rubbed by the band of a hat. In a few cases the remains of other diseases, like the scars of lupus or the leucoplakia of syphilis, with advancing years take on characteristics of malignancy and become cancerous. Clinically, it is not always easy to distinguish between benign growth of the skin and incipient epithelioma, and it is only by microscopic examination that one can be certain of a correct diagnosis.

No internal medication has so far proved of any value. In many cases, whether because of the extent or the location of the disease, or because of the condition of the patient, operation is not to be thought of. A partial operation is worse than non-interference. Superficial epitheliomata, and those occurring in the very old, are much less in need of active interference, for both are commonly indolent. Growths in the vicinity of active lymphatics should be removed at the earliest possible moment. Removal of tissue for examination is a dangerous procedure; there are many cases on record where, in this as in actual operation itself, cancer cells have been disseminated through previously healthy tissues. Instruments that have been in contact with cancerous tissues are a constant source of danger to the healthy tissues of that person till they have been disinfected. The same danger makes the operation under infiltration anesthesia objectionable.

In those epitheliomata in which lymphatic involvement has not yet taken place or is not to be dreaded, removal by some caustic will often be consented to by a patient that would refuse an operation, and the results should be equally as good. Arsenic, which has a selective affinity for cancer cells, is to be preferred to chloride of zinc or caustic potash, which cause destruction of diseased and healthy tissues alike. In the caustic treatment, as in others, thoroughness is the main thing, and superficial caustics, like carbolic acid and nitrate of silver, often do more harm than good. Arsenic, whether used as a paste or as a solution, causes a necrosis of cancerous tissue, and by the inflammatory action excited destroys the low vitality of cancer cells far beyond the range of its actual application, and in this way reaches outlying cells that would not be included in an operation by the knife. The resulting wound is a foul one to the eye, but more likely to yield a good result than if it were aseptic. It rapidly fills in with granulation tissue and often gives a surprisingly good cosmetic effect. The great drawback about the method is that it has no certain action when the lymphatics are involved. When the lymphatics are actually involved, the knife is the only resort giving any reasonable promise of success. In well marked cancer where dissemination is taking place, amputation will often in the end prove the most conservative policy. The glands should be dissected out as thoroughly as possible, and the danger always be borne in mind of

infecting a healthy wound during the process of operation itself.

The inoperable cases must be treated palliatively according to their individual needs, dressed with antiseptics and deodorants. If painful, the lesions must be sprinkled with some analgesic that gives long-continued relief.

BLOOD IN SURGICAL DIAGNOSIS.

After an extended study of conditions of the blood, CABOT, BLAKE, and HUBBARD (*Annals of Surgery*, September, 1901) conclude that at the end of complete anesthesia there is commonly a slight leucocytosis; that at the end of an operation there is much leucocytosis in one-half the cases, and almost always a distinct increase over the number of leucocytes found at the end of complete anesthesia; that the blood at the end of operations for malignant growths is not necessarily much impoverished, in favorable cases usually recuperating rapidly; that hourly variations in the white-cell count may happen in conditions other than in the preperforative stage of typhoid fever, and may be present in health also; and that violent physical exertion produces conditions in the blood that pass the normal and may be identical with those found in a state of disease.

IMPORTANCE OF THE CYSTOSCOPE.

GOLDBERG (*Centralblatt für Chirurgie*, July 27, 1901), writing on this subject, says that he has in the last year performed 150 cystoscopies, twenty-two upon men and the rest upon women.

In eighty-five cases the bladder was found to be diseased; in thirty-seven cases the cystoscope enabled him to determine that the bladder was healthy. Twenty-one patients suffered from tumor of the bladder, and in fourteen of these the tumor was located and its progress noted by means of the cystoscope. Seven cases were not examined in this way, not because it was impossible, but because it seemed unnecessary.

Goldberg believes that almost all tumors can be examined by the cystoscope; at least he has personally not failed to make a successful examination. Although there are many tumors the presence of which can be determined without the aid of this instrument, a certain number of tumors can be diagnosed only by means of the cystoscope.

Stones as a rule can be found by employing other instruments, but not always. When there is much inflammation or ulceration, or when the stone is incrusted, the cystoscope may be needful to the forming of an accurate diagnosis. In tuberculous ulceration of the bladder, Goldberg as a rule avoids the use of the cystoscope. Very few of his prostatic cases were subjected to cystoscopy, since the procedure is somewhat difficult and painful. When operation has been decided on, particularly when the operation is to be by the galvanocautery knife, Goldberg believes the cystoscope should be used. Certain minor points in technique are advised, the most noteworthy being that in regard to local anesthesia. When a bladder forcibly contracts under the stimulating influence of even small injections, before cystoscopy, he injects 50 cubic centimeters of antipyrin. This, says Goldberg, makes the bladder much less sensitive to dilatation than does cocaine. He advises injections of silver nitrate, 1:500 to 1:1000, if the cystoscope is to be introduced into bladders that are likely to be infected.

OPERATIONS FOR STONE.

Lithotrity was performed by ADAMS (quoted in *Cutaneous and Genito-Urinary Diseases*, October, 1901), during a little over two years' service in India, in 153 men and 8 women. Lithotomy also was performed in 36 other cases. These last operations were done only when the crushing operation was found to be impossible or inadvisable.

The contraindications to lithotrity in boys, according to Adams, are: (1) When there is marked cystitis; lithotomy drains the bladder and cures both diseases. (2) When there is much difficulty in passing the instruments. (3) When the stone is too large or too hard for the necessarily small instrument. (4) When there are indications of advanced kidney disease or of great debility, the shock of the cutting operation seems less severe, probably because it is shorter. The contraindications in men are: (1) When the instruments cannot be passed. (2) When the stone is too large and cannot be grasped.

Adams did not find a stone too hard for the lithotrite. In tight strictures perineal section served both for the stricture and for introducing the crushing instrument. He found that in lithotrity the injection of a drachm of sweet oil into the urethra before

beginning operation gave an advantage. In boys over fourteen a full-sized lithotrite was used.

The mortality was considerably higher in the lithotomies than in the lithotrities. In thirty-six operations of the former there were three deaths, while of the latter in 101 operations there were only three deaths.

There were nine cases of urethral calculus, of which four were extracted through the meatus, three after incision of the meatus, and two by external urethrotomy (one perineal and one penile).

In the lithotomies the patients were from three to seventy-five years old. The stones weighed from 70 grains to 4½ ounces. In the litholapaxies the ages ranged from one and a half years to over eighty years. The stones weighed from 1½ grains to 4 ounces.

TOTAL EXTIRPATION OF THE URINARY BLADDER.

A digest of ninety-six cases of total extirpation of the urinary bladder has been prepared by BOVÉE (quoted in *Annals of Gynecology and Pediatry*, August, 1901), after examining which he presents the following conclusions:

Until a more satisfactory plan of disposal of the ureters is found, cystectomy should never be undertaken for conditions other than exstrophy, when partial extirpation of the organ is possible. Even a very small part of the bladder into which the ureters may be debouched is practically free from danger of infection incident to bowel grafts, and further, such disposition of the ureters is more easily executed.

For exstrophy of the bladder the Maydl and Pozzi operations are quite satisfactory, though the danger of infection seems ever present.

Rectal graft of the ureter in its continuity and skin-grafting of this duct are highly dangerous.

Ureterovaginostomy is practically free from the danger of ascending infection, though it gives far from perfect results.

Urethral graft of the ureter seems free from the danger of infection, but the constant dribbling of urine is but slightly ameliorated by the use of a urinal.

The Mauclaire-Gersung operation is worthy of further application, inasmuch as it provides for both sphinctered bladder and bowel.

PRIMARY TREATMENT OF INFECTED WOUNDS WITH TINCTURE OF IODINE.

Disinfecting a wound thoroughly after infection has occurred, even though the aseptic treatment of wounds is now almost ideal, says BECK in the *Medical Record* of August 3, 1901, is yet practically impossible.

A drug that would penetrate the deeper layers of the infected tissue is the great desideratum. This permeating power is found to some extent in tincture of iodine. Beck has used it methodically in all infected wounds, and he considers all wounds that are not inflicted by the aseptic surgeon in an aseptic field as infected. He applies the tincture liberally once over the carefully dried wound surface. Fifteen minutes afterward, examination of the tissues shows evidence of permeation, and no cultures can be obtained from such areas. If the bacteria are not destroyed, the soil is rendered unfavorable to their further development.

In Beck's cases no general disturbance has yet been observed in the large number of patients on whom the iodine treatment has been tried, although in two cases iodine reaction was found in the urine three and four hours after the application. The further treatment was carried out on general principles.

REMOVING THE FEMALE URINARY BLADDER FOR MALIGNANT DISEASE.

The operation of removing the bladder of females for malignant disease has not received, according to MANN (quoted in *Annals of Gynecology and Pediatry*, August, 1901), enough attention in this country. He reports two cases, both of which recovered from the operation. From literature he has collected fourteen cases more. A study of the sixteen cases leads him to believe that in certain malignant diseases of the bladder total extirpation is a justifiable operation, offering no serious difficulties to an experienced surgeon in abdominal work, and giving the patient a chance to exist in comfort.

Diagnosis can be made by the symptoms, with the cystoscope, by palpating, and by examining the urine. Treatment may be removal through the urethra, the vaginal septum, or by suprapubic cystotomy. The operations are: the removal of the growth and its base; resection of part of the bladder; or cystectomy. Indications for total removal are multiple growths, return after

removal, extensive involvement of the base, and extension of cancer of the cervix uteri into the bladder. The ureters need no attention at the time of the operation, as by the removal of a part of the anterior vaginal wall they will discharge into the vagina. If possible, the ureteric openings into the bladder should be left intact. This will rarely be possible. Mann does not believe in ureterointestinal anastomosis. The vagina can be used as a receptacle for the urine, as has been done by Pawlik. If this be done there will be little danger of infection traveling to the kidneys, as the newly made bladder can be kept clean. The operation is done in the Trendelenburg position. The peritoneum over the bladder being cut, the bladder is enucleated by the fingers, and the base, with the anterior vaginal wall still attached, is removed. The uterus is then removed and the peritoneum closed over the floor of the pelvis.

CANCER OF THE INTESTINE.

The operative experience of LUND *(Boston Medical and Surgical Journal*, Aug. 29, 1901) consists of only three cases of cancer of the intestine, but he has been able also to follow a considerable number of cases in the practice of colleagues.

He believes that the diagnosis is frequently made too late, and that in cases which resort to the physician early in the disease, with vague or uncertain intestinal symptoms, including loss of weight, in patients past middle life, the physician should never forget the possibility of intestinal cancer, nor omit to carefully exhaust all means of diagnosis at his disposal, unless he is willing to be responsible for the frequently rapid progress of the trouble to an incurable stage.

The author believes that operation is indicated absolutely in all cases in which a tumor is suspected of being a cancer of the intestine after careful eliminative diagnosis. If a benign tumor or obstruction is found so much the better. Operation is indicated where the symptoms point to a probability of stenosis of the bowel, whether a tumor is palpable or not. Exploratory operation is indicated whenever vague intestinal symptoms associated with loss of weight in persons past middle life lead to the suspicion of intestinal cancer. Exception should be made of cases of general metastases of the peritoneum, cancer of the liver, etc., in which event no radical operation can be proposed, but all operative measures must be directed to palliation. With regard to the nature of the operation, that must be determined at the time in accordance with the nature of the individual case. Excision of the growth with immediate union of the ends of the bowel is the ideal to be sought. Intestinal anastomosis and enterostomy are merely palliative measures to be undertaken where the former is impracticable.

THE PRESENT INDICATIONS FOR OPERATION IN GASTRIC ULCER.

After discussing the experience of distinguished students of the treatment of gastric ulcer, CABOT *(Boston Medical and Surgical Journal*, Aug. 29, 1901) presents a condensed statement of the present indications for surgical treatment as follows:

1. Acute hemorrhages should rarely be treated by operation; the results of interference have not been good, while the results of medical treatment have been satisfactory. When, however, a hemorrhage frequently repeats itself, even if severe in amount, it will demand operative treatment as soon as its recurrent character is plain.

2. Small, frequent hemorrhages, threatening anemia, give a clear indication for operation.

3. Perforation of the stomach, either acute with general peritonitis, or chronic with surrounding adhesions and perigastritis, demands instant operation.

4. When an ulcer runs a chronic course with a strong tendency to recurrence, and gradually diminishes the patient's capacity for work and for enjoying life, an operation is indicated, especially when the patient is so situated as to be dependent upon his daily work for support and unable to closely regulate his diet.

SEVERE CASE OF OBTURATOR ILIUS RELIEVED BY OLIVE OIL AND ATROPINE.

ADAM *(Münchener Med. Woch.*, April 23, 1901) reports the case of a man, aged sixty-seven, that presented himself with a severe case of obturator ilius, characterized by the usual symptoms. The patient was treated by hypodermic injections of atropine and enemas of olive oil frequently repeated. The patient's condition remained stationary until the seventh day, when the obstruction disappeared, and with it all of the patient's symptoms. He made a complete recovery.

Reviews.

THE ESTIVO-AUTUMNAL MALARIAL FEVERS. By Charles F. Craig, M.D.

New York: William Wood & Co., 1901.

Dr. Craig, who is an acting assistant surgeon in the United States army, and who has had very considerable experience with the examination of blood in malarial fevers during the last two or three years, owing to the Spanish war and its results, has contributed to medical literature an interesting and important volume of over 200 pages dealing with a matter with which the profession is, in general, far too ignorant. The opening portion of the volume deals with the consideration of our present knowledge concerning the estivo-autumnal parasite, which is recognized as being the cause of remittent and pernicious malarial fevers. Dr. Craig is a firm believer in the view that this parasite may be considered in two divisions, the quotidian and tertian, and he controverts the views of those who believe that these two divisions are artificial. In the eighteen chapters which compose the book he also gives methods of examining the blood for the malarial parasite; the etiology of the disease; its transmission; the special pathology of estivo-autumnal fevers; the masked forms of these fevers; their complications and sequelæ, diagnosis and prognosis, and finally their prophylaxis and treatment.

The book is opportune and throws additional light upon a subject which while always important has become more so since the flag has flown over lands not forming part of the States in the old acceptation of that term.

DISEASES OF THE DIGESTIVE ORGANS IN INFANCY AND CHILDHOOD. By Louis Starr, M.D. Third Edition, Enlarged and Rewritten. Illustrated.

Philadelphia: P. Blakiston's Son & Co., 1901.

This most excellent book upon the digestive disorders of childhood is known to many of the profession. The fact that it is written by one who for many years has devoted himself to pediatrics assures us that the statements he makes are based upon wide clinical experience. It is emphatically a book embodying the author's views rather than a compilation of the views of others. In addition to a discussion of the digestive disorders which are met with in this class of patients, there is also an introductory portion which is devoted to the general management of children. including their feeding, bathing, clothing, sleep, their exercises, and a special chapter upon the management of weak and immature infants; this introductory portion closing with a final passage upon massage in children. The following chapters of Part I deal with the various diseases produced by improper food and imperfect nutrition, and it is not until we get to Part II that we find chapters on the actual disorders of the digestive apparatus in the child, including the throat, the stomach and intestines, the mesenteric glands, the affections of the liver, and the affections of the peritoneum. In the chapter on scurvy the author republishes a statistical table of cases of infantile scurvy which he has met in his practice in the last decade, a table which has already appeared in one of the weekly journals. Almost half of the book is taken up by the introductory portion and Part I, so that the remaining half deals, as we have said, with the digestive disorders alone.

A very large part of the volume deals with the treatment of the affections which are described. As a small reference book for busy practitioners it can be cordially recommended.

MEDICINAL PLANTS OF THE PHILIPPINES. By T. H. Pardo De Tavera. Translated and Revised by Gerald B. Thomas, Jr., A.B., M.D.

Philadelphia: P. Blakiston's Son & Co., 1901.

The great increase in our interest in the Philippine Islands which has occurred during the last two or three years makes this book opportune. It does not profess to be a complete and exhaustive treatise dealing with the peculiar drugs of that portion of the world, but it probably contains a list of most of the medicinal substances which possess material value and which are indigenous to those islands. The author was originally commissioned by the Spanish government to study the medicinal plants of his native country, and this is the result. An examination of the pages of this book reveals the fact that it is more a contribution to the medical botany of the Philippines than a volume which describes any of the therapeutic applications of the plants with which it deals.

A TREATISE ON PHARMACY. By Charles Caspari, Jr., Ph.G. Second Edition, Revised and Enlarged. Illustrated.

Philadelphia and New York: Lea Brothers & Co., 1901.

Professor Caspari's Pharmacy is a well known book among pharmacists, although not so well known to practicing physicians. While considerably smaller in size than Remington's Practice of Pharmacy, it embodies a vast amount of valuable information of use to pharmacists. It describes the various pharmaceutical processes by which drugs are prepared, and illustrates the apparatus commonly employed by active druggists, and in its latter portions deals with the preparation of prescriptions and the chemistry of most of the medicinal substances which are used in medicine. The book has an added interest because as a frontispiece it contains excellent likenesses of six of the leaders of American pharmacy during the last half of the nineteenth century, namely, William Proctor, Jr., Edward Parrish, Israel Grahame, John M. Maisch, Edward R. Squibb, and Charles Rice.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY FOR STUDENTS AND PHYSICIANS. By Charles Simon, M.D.

Philadelphia and New York: Lea Brothers & Co., 1901.

That Dr. Simon is much interested in the subject of physiological and clinical chemistry is shown by that excellent book which we have reviewed in previous years in these columns which deals with the chemistry of clinical medicine, a book which he has now followed by an equally excellent one dealing with physiological chemistry itself. The titles of the various chapters are as follows: The albumins; the carbohydrates; the fats; the nitrogenous derivatives of albumins; the ferments; the digestive fluids; the processes of digestion and resorption; and these chapters are followed by others upon the analysis of the products of albuminoid digestion; bacterial action in the intestinal tract; the feces; the urine; the blood; the lymph; the muscles, nerves, the eye and ear, the skin and the glands. The book is a valuable one, but we do not see exactly what function it can fulfil for medical students. Most of the competent works on physiology contain nearly all the information which medical students require in regard to physiological chemistry, and there are not many members of the profession in active practice who are willing to devote any amount of time to the study of this important but nevertheless highly specialized part of medicine.

To those who desire to improve their knowledge concerning the subjects treated in this work, the book can be highly recommended, for Dr. Simon has devoted many years to the study of the subjects of which he writes, and is careful in his scientific statements.

A TEXT-BOOK OF NERVOUS DISEASES FOR STUDENTS AND PRACTITIONERS. By Charles L. Dana, A.M., M.D. Fifth Edition.

New York: William Wood & Co., 1901.

Dr. Dana, as our readers know from reviews of the earlier editions of his Textbook of Nervous Diseases, has succeeded in presenting an able summary of this somewhat difficult but interesting subject. The book at present may be considered as being one of the best, if not the best, of the smaller works upon diseases of the nervous system that are published in the English language. It is not by any means as full as the composite work edited by Dr. Dercum, nor as complete and voluminous as the well known two-volume work of Dr. Gowers. It covers altogether about six hundred pages, and the only fault that we have to find with it is the poor quality of the illustrations, which almost without exception suffer by comparison with illustrations commonly found in text-books which are published at the present time, and which are also far below the text in quality. The present edition does not differ very materially from the fourth edition which appeared four years ago. The author has rewritten the chapter upon myelitis, adding one upon general paresis, and inserting a number of new cuts in place of the old ones. He has also stricken out certain portions of the text which he considered unimportant, and thereby has avoided increasing the size of the work.

A TEXT-BOOK OF BACTERIOLOGY. By George M. Sternberg, M.D., LL.D. Second Revised Edition.

Philadelphia and New York: William Wood & Co., 1901.

Dr. Sternberg's first contribution in the way of a volume to the literature of bacteriology appeared in 1892, and the title of his book was at that time "A Manual of Bacteriology," which was the most exhaustive volume dealing with this subject then

extant. It was found, however, that it contained a large amount of information which was not of any practical value to the average student and practitioner, and therefore in 1896 he published a third edition, which was entitled "A Text-book of Bacteriology." The present volume is entitled "A Second Edition of the Text-book of Bacteriology," or, in other words, is a more condensed presentation of the facts which he thinks are of importance. Altogether the text at present covers a little over 700 pages, and this is a good deal broken up by the introduction at various places of a large number of illustrations, which number over 200, and which clearly illustrate the bacteriological technique and the microorganisms which Dr. Sternberg describes. Some of the chromolithographs are rather poorly executed as compared to the excellent work which we now see in chromolithography, but even those which are somewhat crude, in the sense of the colors being coarse, are clear in the sense that they illustrate to advantage the points which Dr. Sternberg wishes to emphasize. It is only just to say that some of the chromolithographs which we have criticized as being inferior are more than counterbalanced in detail and definiteness by a number of others very satisfactory, which are colored and most excellent. The first part of the volume deals with the history, classification, morphology, and technique of bacteriology, including the methods of culture and photography.

The second part deals with general pathology and the characteristics of the organisms discussed; the third part with pathogenic bacteria, their modes of action, the channels of infection, immunity and protective inoculation; and the fourth part with saprophytes and of bacteria in the air, in the water and soil, on the surface of the body and in the stomach and intestine. The sixth and seventh chapters deal with the bacteria of cadavers, of putrefaction, and the bacteria in articles of food. It will be seen, therefore, that even in this so-called text-book the author has presented us with a very exhaustive and broad field of study, and as Dr. Sternberg is not only a pioneer in bacteriology in America, but also a recognized representative of bacteriologists of the present day, his book will necessarily take a position which cannot be approached by many others.

We have read with interest the description of the bacillus dysenteriæ of Shiga and Flexner. The book embodies the researches made by the latter investigator in the Philippines in 1898, when he went there under the auspices of the United States government, of the army of which, as is well known, Dr. Sternberg is the surgeon-general.

THE TRANSACTIONS OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.
Philadelphia: The F. A. Davis Co., 1901.

A very considerable number of papers are considered in this volume of transactions, and a record of the proceedings of the association other than its scientific business is also included. The papers, which seem to us of the greatest practical interest to the general practitioner, are those upon the Use of Electricity in Respiratory and Cardiac Failure, by Dr. Rockwell, of New York; The Electric Treatment of Sciatica, by Dr. Charles R. Dickson; and General Statistics of Stricture of the Urethra Treated by Electrolysis, by Dr. Robert Newman.

A MANUAL OF CHEMISTRY. By W. Simon, Ph.D., M.D. Seventh Edition, Thoroughly Revised.
Philadelphia and New York: Lea Brothers & Co., 1901.

Dr. Simon's Manual of Chemistry is too well known to those who are interested in this subject to need introduction to the medical profession, and the fact that it has reached the seventh edition within a comparatively short time after the publication of the first shows that it has met the needs of the student and physician. The portions of the book which have been most cared for in the present edition seem to have been those of physiological chemistry, and have been prepared for the benefit of medical students particularly. He also tells us that much new matter has been added to these chapters, and special care has been taken to mention the most modern methods for chemical examination in clinical diagnosis. It is, of course, these portions of the book which will appeal most largely to students and practitioners of medicine. All portions of the work are well printed, and what is better, well illustrated. The illustrations in which colors are used are particularly good, and the publishers deserve much credit for their careful preparation, for the blending and shading of various colors, under the circumstances, is a difficult process. We have thought for a long time that Simon's Chemistry was the

best book upon the subject extant, and the present edition confirms our belief and will certainly increase the popularity of the work.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and of Specially Prepared Articles. Edited by Henry W. Cattell, A.M., M.D. Volume II, Eleventh Series.

Philadelphia: The J. B. Lippincott Co., 1901.

The present issue of the International Clinics contains about three hundred pages, and in these pages are contributions dealing with therapeutics, medicine, neurology, surgery, obstetrics and gynecology; children's diseases; pathology; diseases of the eye, and laryngology. The volume closes with miscellaneous articles dealing with the pronunciation and definition of some of the newer medical words, by Dr. Dorland. In the portion devoted to therapeutics, there is a letter by Dr. Turck, of Chicago, upon the treatment of atony of the stomach and colon; one by Tuffier, of Paris, upon intraspinal injections, and one by Doleris upon the same topic and their influence upon labor. Jardine, who has done so much to popularize the use of normal saline solutions in puerperal eclampsia, writes upon his favorite topic; and Chauffard, of Paris, has a chapter upon the preventive treatment of recurrent attacks of hepatic colic. Amongst the articles devoted to medicine, one of the most interesting is that of Dr. Douglas upon hemoptysis, hematemesis, and other internal hemorrhages; while in the department of Pediatrics Blackader, of Montreal, writes upon acute disease of the heart in childhood and adolescence. The fact that there are twenty-eight articles in a space of less than three hundred pages shows that none of them can be very exhaustive, but nearly all of them are distinctly interesting.

A RETROSPECT OF MEDICINE. A Half-yearly Journal, Edited by James Braithwaite and E. F. Trevelyan. July, 1901.

London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1901.

Braithwaite's Retrospect still maintains its excellent characteristic of including the literature of medicine which has seemed of value to its editors. Indeed, any one who has a file of Braithwaite's Retrospect since its institution has a fairly complete and certainly accurate summary of medical literature during the last sixty years. It is rare that one publication maintains its useful characteristics for so long a time.

LIBERTINISM AND MARRIAGE. By Dr. Louis Jullien. Translated by R. B. Douglass.

Philadelphia: The F. A. Davis Co., 1901.

This is a typical French work, written by one of the assistant professors in the Faculty of Medicine of Paris. The preface is as typical as the following pages. In it the following ingenuous paragraph appears: "As I write these lines I naturally think of the learned men who in America have enriched the specialty in which in fairness I strive to do my best, and it is with a sincere feeling of esteemed friendship and gratitude that I quote the names so highly honored of Messrs. Bumstead, Taylor, Keyes, White, Duhring, Duncan Bulkley, Fordyce, Ravogli, Montgomery, and many others who I forget, but who if they are less known are still as deserving." Dr. Jullien well says that he who reads this book will quickly see that in the majority of the cases woman is the victim, and that many of the histories which he embodies in the work might be considered part of a "martyrology." The various chapters of the book do not deal with the therapeutic interests of the question so much as with the ethical side of the subject under debate.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume III, September, 1901.

Philadelphia and New York: Lea Brothers & Co., 1901.

This volume contains an article upon diseases of the thorax and its viscera, including the heart, lungs, and blood-vessels, by Dr. William Ewart, of London. His article is characterized by a careful consideration of medical literature during the past twelve months in the field which it is his lot to cover; and is followed with a most excellent article upon diseases of the skin by Dr. Gottheil, of New York, whose well known and accurate Atlas of Skin Diseases is doubtless in the hands of many of our readers. The third article, by Dr. William G. Spiller, upon diseases of the nervous system, is a careful summary of the best literature in England and in European medical journals for the preceding twelve months. The closing article of the volume is upon obstetrics, by Dr. Richard C. Norris, who is the physician-in-charge of the Preston Retreat. This is a most excellent contribution to clinical obstetrics, and he who

reads it will possess in the space of seventy-five or a hundred pages pretty much everything which is worthy of notice in obstetrics during the last year.

A MANUAL OF DISEASES OF THE EYE FOR STUDENTS AND PRACTITIONERS. By Charles H. May, M.D. Second Edition, Revised.
New York: William Wood & Co., 1901.

Dr. May has given us a small octavo volume of about four hundred pages, containing a concise, accurate, and most useful condensation of modern ophthalmology. It does not pretend to be a complete manual of this branch of special medicine, like the well known text-book by de Schweinitz, or those written by several well known ophthalmologists of London. Most excellent illustrations aid the author in describing the operations which are commonly employed in ophthalmic surgery, and while the colored plates illustrating the conditions of the retina are not as well executed as they are in some other works, they are quite good enough for the purpose. Those which illustrate microorganisms which are found in various forms of conjunctivitis are exceedingly good. We can readily commend this book to the general practitioner who wishes to refer to an accurate but brief summary of modern ophthalmic practice.

WARWICK OF THE KNOBS. By John Uri Lloyd.
New York: Dodd, Mead & Co., 1901.

It is not long since we reviewed in a very favorable way another work of Dr. Lloyd's, namely, that entitled "Stringtown on the Pike," which was a story of Kentucky life during the Civil War. The present work deals with the same time and with pretty much the same district, in that the scenes are laid in picturesque Boone, or Stringtown, county. The effort of the author is to give a narrative which will describe the manners and characteristics of a strange people in a curious form of life in northernmost Kentucky during the period of the Civil War, mentioning details which are of great interest, and yet scarcely of sufficient importance to have obtained any place in historic descriptions of those times and of those parts. Warwick is a "hard-shell Baptist" who becomes the center of several strangely dramatic scenes and pathetic incidents which have a tendency to drive him to agnosticism, but which in the end only make him more faithful than ever to his religious beliefs. It is always a pleasure to find men in medicine, pharmacy, and botany who have sufficient talent to contribute to ordinary literature, and for this reason if for no other we welcome this publication of Dr. Lloyd's.

A PHOTOGRAPHIC ATLAS OF DISEASES OF THE SKIN. By George Henry Fox, A.M., M.D.
Philadelphia and London: The J. B. Lippincott Co., 1901.

We are told on the title-page of this new work upon dermatology that it is the "Physician's Edition," and we cannot help wondering why it should be given this name, for we can hardly conceive of any one else than a physician desiring to purchase colored illustrations of skin lesions. It is by no means a new thing for Dr. Fox to appear before the profession as a dermatologist, and as a competent illustrator of the diseases of which he treats. Indeed, he is so well known to the profession of America in his particular line that the extraordinary praise given him by his publishers in their notice of the work seems unnecessary, if not in bad taste. There are before us at the present time four parts of this Atlas, which is to appear in a series of 80 plates comprising more than 100 illustrations, and accompanied by descriptive text and a treatise on cutaneous therapeutics. The illustrations, which after all are the most important portion of the work to the general practitioner, are exceedingly good. Not only are the cases themselves typical, but the difficult task of reproducing them in approximately natural colors and appearance has been singularly successful. The statement that therapeutics forms a large part of the work is proved by the very considerable amount of text which is devoted to this portion of the subject, and the heavy paper and large type make the publication appear more like an *edition de luxe*.

We have within the last year or eighteen months reviewed in the GAZETTE another illustrated work upon diseases of the skin to which we accorded high praise, and stated unhesitatingly that the general practitioner would gain much benefit from its possession. The same statement holds true in regard to the present work, which is perhaps even finer than that to which we have referred. This atlas is at once a credit to American dermatology, a benefit to the general practitioner, and a beautiful contribution to the making of books.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D., F.R.C.P.

There has been no substantial increase in the amount of smallpox in London since last month. For a few days last week the admissions to hospital assumed a rather alarming proportion, amounting to close on a hundred cases in three days. This little outbreak, however, was practically confined to two districts, and the cases were for the most part traced to a common source. Even the number (some 270) at present under treatment has, however, grown beyond the capacity of the hospital ships, and it has been necessary to convert another isolation hospital into a temporary smallpox hospital. The ships have never been entirely satisfactory: they were not new when first appropriated to the present use some twenty years ago, and in their exposed position time and weather have told heavily on their fabric, so that the expense of necessary repairs now makes it a question whether other accommodation of a much more economical character could not be provided. Such other drawbacks have occurred as collision with a large steamer, which imperiled the very existence of one of the ships; also on more than one occasion delirious patients have jumped overboard and found a watery grave. The likely solution of the difficulty is that as soon as the present outbreak is over, the hospital ships will give place to a modern hospital for 1000 patients, that is in course of construction on terra firma. It is not a comforting reflection that even then the total available accommodation for four millions of Londoners, in the event of a smallpox epidemic, will be only just over two thousand beds. All the exertions of the local authorities in dealing with smallpox must avail nothing, and their best precautions must be futile, in the absence of sufficient isolation accommodation.

If the present outbreak dies away without further spread, it may certainly be regarded as an unmixed blessing, as it has brought an enormous portion of the population into the vaccinator's hands, and so given some guarantee of immunity from an epidemic in the immediate future. It is really not surprising that the public are not convinced of the efficacy of vaccination, seeing that the profession have put before them no statistics from which to form their own conclusions. Such as have been published are worse than useless, as no effort is made to distinguish vaccinated from revaccinated, and the natural result is that the incidence appears to be somewhat less on the unvaccinated. As a matter of interest I have perused a good deal of medical literature on the subject of vaccination, and I can find no sort of agreement as to what constitutes successful revaccination. If the fully formed vesicle is to be the sole criterion, I venture to think that the successful revaccinations are comparatively few. Practical experience certainly leads one to recognize many degrees of less obvious "reaction."

In a former letter I dealt at length with the report of Mott and Durham on asylum dysentery. The general conclusion was that the disease is of an infectious character and propagated by overcrowding and other unsanitary conditions. At Cheltenham, Dr. Claye Shaw sought to establish the essential causal importance of factors other than these. The report itself shows that the incidence of the disease is not always greatest in the most overcrowded asylums, and that it does actually exist where there is no suspicion of overcrowding and no apparent sanitary defects. Moreover, if due to these conditions exclusively the disease should be very wide-spread in the London slums, which is not the case, and its incidence on the poorest of the population. Claye Shaw clings tenaciously to the view that an essential factor in the disease is ulceration of some parts of the intestine due to nerve degeneration, and that whatever pathological process may be engrafted on this must be regarded as secondary. This, of course, is tantamount to contending that the ulcerative colitis of asylums is not dysentery, and that it is not infectious in its origin. The symptoms of the two conditions, however, are so similar that the pathological differentiation is a matter of the greatest difficulty. It is quite possible that in each case the diarrhea is of bacterial origin, but that does not prove that the ulceration in each case is bacterial. Claye Shaw calls attention to the fact that sloughing and ulceration of the skin and tissues resembling mucous membranes are more common in the insane, especially in

the very degraded types: he notes also the liability of the digestive system to degeneration in all forms of nervous impairment, as is seen in loss of appetite, refusal of food. and constipation or diarrhea.

Mansell Moullin read a paper of some interest at a recent meeting of the Clinical Society on the "Treatment of Ascites by Suturing the Omentum to the Anterior Abdominal Wall," a modification of the original procedure of producing perihepatic adhesions. Two of his five cases died—one from exhaustion, one from pleurisy; two others were in good health two years after operation. This approximately represents the general rate of mortality of this operation so far as it has been performed in this country, and should beyond question make one think seriously of its justification. It is, of course, possible that operation may afford some relief to ascites so far as it is of purely mechanical origin, inasmuch as newly formed vascular channels will undergo the same complementary dilatation as is seen in the anastomoses of the portal with the systemic venules in cases of cirrhosis, but this added degree of relief must be of a most limited character. In any case the procedure ignores the very essence of hepatic cirrhosis, the toxemia, although it has been soberly contended that the increased blood-supply will induce such hypertrophy of the residual liver tissue as to counteract even this effect. If early operation, as the surgeons insist, is the sole guarantee of success, still less would the procedure seem justifiable, as many large cirrhotic livers, either by reason of the small degree of contraction, or from the circumstance that collateral anastomosis advances *pari passu* with contraction, do not terminate in ascites. Mansell Moullin recommends a high median incision above the umbilicus, as giving free access to the upper surface of the liver, and allowing the omentum to be fixed to the abdominal wall by sutures passed from its peritoneal surfaces; moreover, there is less likelihood of subsequent trouble from ventral hernia, a condition that had ended fatally in one of Morrison's cases. It is open to question whether such relief of ascites as is afforded by this method is not rather due to obliteration of the peritoneal sac than to reopening of fresh channels.

At the Medical Society of London Elliot and Washbourne analyzed the statistics of 262 cases of enteric fever under their care in South Africa, and compared them with the statistics of the Maidstone epidemic in 1897, of the Metropolitan Asylums Board, and of the Johns Hopkins Hospital, with a view to showing whether the disease in South Africa was identical with that met with in England and America. The mortality was almost identical with the normal Metropolitan mortality of enteric fever, but about twice as large as that of the Maidstone epidemic or of the Johns Hopkins Hospital. The incidence of relapse was practically the same as in England and America, as also the interval between the end of the primary attack and the commencement of the relapse. Their statistics, together with those gathered from other hospitals, showed a mortality among 120 inoculated patients of 7.4 per cent, and among 556 non-inoculated patients of 10.9 per cent. This difference hardly pointed to any marked benefit from inoculation. Similarly, of 224 inoculated patients the incidence of disease was 11.4 per cent, and of 157 non-inoculated patients 14.6 per cent. Inoculation seemed, therefore, to be only slightly preventive if at all, and to have an almost inappreciable influence in diminishing the mortality. The incidence of attack on those nursing the enteric patients was 12.7 per cent, showing the liability to infection. Hemorrhage occurred in 6.1 per cent of cases—*i. e.*, about the average—but the mortality from hemorrhage was double that in England and America. Phlebitis also was rather unduly frequent. There was constipation in 42.7 per cent of cases, as against 50 per cent at Maidstone, and 34 per cent at the Johns Hopkins Hospital. Constipation has always seemed to me to be more frequent in the epidemics of least severity, and therefore to some extent to be of favorable significance. Rapid pulse and cardiac collapse were very frequently seen in patients who had been recently exposed to severe fatigue. Cases complicated with simultaneous dysentery showed the high mortality-rate of 33.3 per cent.

Their general conclusion is that South African enteric fever is identical with that seen in England and America, and that inoculation is of little practical value. This conclusion would seem to me to be some-

what premature without a full analysis of the intervals between inoculation and the attack, as it has never been claimed that inoculation provides more than a very temporary immunity. Others who have had a large experience of enteric fever in South Africa consider that some degree of immunity is almost unquestionable, for a period of a few months, and that the severity of attack is also diminished by inoculation.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

At the Congress of Gynecology and Pediatrics held at Nantes, one of the most important subjects reported on was the treatment of tuberculous affections of the joints in children. Dr. Poisson favored conservative methods, and stated that it is an error to consider such tuberculous affections as being progressive and necessitating heroic treatment. There is a spontaneous tendency toward a cure, and the dictum that where there is pus there should be evacuation is no longer true in this case. Such operations as excision are to be rarely employed, and only to be resorted to in urgent cases. The importance of a sojourn on the seacoast was insisted upon not only by Dr. Poisson, but also by Coudray, of Paris.

Professor Kirmisson, who has been recently chosen professor of clinical surgery for children, spoke of the importance of radiography in the clinical study of Pott's disease. Inspection does not indicate the formation of pus when there is disease of the dorsal region, and in such cases radioscopy permits of one recognizing the existence of a caseous deposit in front of the vertebral column.

Dr. Boussier, of Bordeaux, made a long report on the treatment of fibromata complicating pregnancy. His concluding remarks show that he favors an operation only when complications supervene. The best operation for dystocia caused by fibromata would be Cæsarian section.

Dr. Baudron made a communication on the treatment of uterine anteflexion. He acknowledged that it is the most frequent cause of sterility, and advocated simple dilatation with laminaria tents, completed by progressive dilatation with Hégar's sounds.

Professor Pozzi advocated the use of his operation of stomatoplasty, which consists in modifying the os externum. He said that dilatation did not bring about a cure in some cases in less than a year. Professor Pinard took up Dr. Pozzi's assertions, and said that dilatation did not require more than fifteen days. Care should be taken to dilate the whole of the uterus.

The treatment of cancer of the uterus was also discussed. Dr. Monprofit said that a complete cure could only be obtained by an operation undertaken in the initial stages of the disease. Later on it is best to perform a relatively simple operation. The cancerous portion of the uterus should be removed by the vagina, and the operation completed by abdominal hysterectomy. Pozzi prefers to remove a portion of the cancerous tissue with the curette, and then burn the tissues with the thermocautery. The operation is performed the next day. Dr. Segond also agreed with Pozzi that it is futile to perform extensive operations, as it is well-nigh useless to do more than relieve the patient.

Alexander's operation was also discussed by Drs. Potherat and Segond. Dr. Potherat considers it the best operation when there are no adhesions. Dr. Segond said he considered it an excellent operation, much to be preferred to those which provoked adhesions to the abdominal wall.

Another subject brought forward was the treatment of eclampsia. Dr. Hirigoyen, of Bordeaux, favored intervention by dilatation and rapid extraction of the child. Professor Pinard remarked that there is no systematic treatment of eclampsia. He said that it is necessary to have complete statistics of a large number of cases treated by the same method. He is not in favor of venesection or obstetrical treatment. All depends on the condition of the liver cells. If they are too much altered, no treatment can prevent death taking place. As for more living children being obtained by obstetrical means, as most of the latter die soon after or live to be a source of expense to their families and to the State, this was a subject of discussion. Dr. Ollive, of Nantes, said that he has never lost a case of eclampsia, and he has always noticed an improvement after venesection.

According to Professor Landouzy, there are at present in France thirty-two institutions belonging to different schools where children can be sent for a cure by a

sojourn in the country. There are also nineteen establishments where the children of Paris are sent during the vacations; 8216 children were sent into the country last year. Professor Landouzy said much more is done at present in Germany, 32,000 children being treated in this manner. He insisted upon the important advantages offered by such institutions, and described the results obtained in certain cases.

At a recent meeting of the Society of Therapeutics, Dr. Leredde spoke of the results he had obtained in the treatment of anal pruritus by the use of high frequency currents. One electrode is introduced into the anal orifice. The treatment is continued from two minutes to a quarter of an hour, and repeated three times a week.

Professor Lépine, of Lyons, has written recently in *La Semaine Médicale* a long article on the treatment of diabetes. In it he speaks of the importance of calculating the quantity of sugar excreted not only with the polarimeter, but also with Fehling's solution, as the existence of maltose may modify the results obtained with the polarimeter. The quantity of urea should also be determined, as the relation between the quantity of urea and that of sugar permits the determination whether the patient is following the regimen. Albumin is generally present, and the quantity of renal casts should also be investigated, as a large number of the latter shows irritation of the kidney and precludes the use of any drug which would increase this condition. Professor Lépine insists on the importance of recognizing the presence of diacetic acid, by the use of Gerhardt's reaction. The latter consists in pouring a solution of perchloride of iron in drop doses into the urine to be examined. If the urine becomes dark-red, the presence of diacetic acid is demonstrated when no drug has been given which can produce this reaction. Professor Lépine considers this phenomenon much more important than the acetone test. All cases where this symptom is to be found after treatment are of fatal prognosis.

As to treatment, Professor Lépine divides his subject into two parts: the method to be used when there is no diacetic acid, and that to be used when it does exist. In the first case, he insists upon an albuminous regimen during three days, so as to recognize if the excretion of sugar continues. This being established, a special regimen should be instituted for each patient, a mixed diet being indicated. It should be remembered that some hydrocarbons are utilized much less than others, potatoes for instance being much better tolerated than bread by certain diabetic patients. In cases where glycosuria still continues, Professor Lépine advocates a mixed diet, as he considers it important to avoid the irritating action on the kidneys. According to Talma, the amount of sugar excreted may be due to a species of renal diabetes, and this would favor the use of a mixed regimen.

In the second category established by Professor Lépine, two subdivisions are made: patients in whom the diacetic acid diminishes very much or disappears almost completely, and those in whom no appreciable effect is produced. Professor Lépine remarks that the ingestion of large quantities of carbohydrates is followed by a falling off in the quantity of diacetic acid, but the quantity of sugar increases. Schultzen has recommended glycerin, but Schwarz has recently advocated the use of gluconic acid, which is partially oxidized glucose. This drug was twice tried on a patient suffering from diabetic coma. The treatment consisted in giving him in a half liter of water 70 grammes of gluconic acid, neutralized with bicarbonate of soda. Moreover, 140 grammes of the same salt was given by the mouth or rectum. The third time there was no gluconic acid to be had, and the patient died the third day. In connection with this important observation Dr. Lépine remarks that this case was certainly worthy of notice, and it would be well not only to try it in diabetic coma, but also in the period preceding it characterized by acid dyscrasia. Professor Lépine has used intravenous injections of bicarbonate of sodium solution with excellent results.

Koplik's sign in measles does not seem to be always a sure symptom of this disease. This sign consists in red spots on the mucous membrane of the mouth, the center of which is slightly prominent. Widowitcz, a physician of Gratz, has found it in 140 cases out of 158—that is to say, in 88.6 per cent of the cases. He has, however, seen it ten times in German measles, once in a case of follicular tonsillitis, and once in a case of stridulous laryngitis. Rolly has found it in 24 cases out of 78, and has never seen it in other diseases.

SUPRARENAL GLAND IN HEMOPTYYSIS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In the issue of the THERAPEUTIC GAZETTE of September 15, 1901, page 648, Dr. G. W. Finkham writes that he has used the suprarenal extract in several cases of hemoptysis in patients when the catamenia were present, and observed that within twelve hours the menstruation nearly ceased. In administering the suprarenal extract to patients with hemoptysis when the catamenia were present, I have also observed the same effect. The suprarenal extract has been administered by me to anemic women to check profuse menstruation. In two very anemic girls I have succeeded in completely checking the menstruation.

I have also used the extract with marked success in many cases of internal hemorrhage from various causes.

Yours truly,

SAMUEL FLOERSHEIM, M.D.

NEW YORK, Nov. 3, 1901.

VERATRUM VIRIDE IN ECLAMPSIA.

[The following letters were received by the Editor in reply to a request that the writers should express their views as to this plan of treatment.—ED.]

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I have used veratrum viride for almost fifteen years in puerperal eclampsia and believe it has always been a help to me. Most of the cases I have had were among negroes, and of the poorer class, and usually I was not called to see them till they were in actual convulsions.

I give ten drops of Norwood's tincture with ½ grain morphine and 1-75 grain atropine under the skin at first, to be followed by five-drop doses of veratrum viride every half-hour till pulse falls below 70 per minute. Chloroform inhalations are given to control spasm, and in weak subjects strychnine and nitroglycerin with high enemas of hot salt solution. Sometimes hot blankets and hot bottles are used if the skin does not act promptly. I have never seen a spasm after the pulse got below 70 per minute. I have given it to both strong and weak subjects, and cannot recall an instance in which it did any harm, though I have never had to use more than 20 to 25 drops under the skin, and if I thought it necessary after the pulse had fallen to keep up the drug, it was given by the mouth every three hours. The only preparation I have had any experience with is Norwood's tincture. My own belief is that it is the best remedy we have, though my experience has been limited.

Yours truly,

R. B. HANAHAN.

WINNSBORO, S. C., Oct. 23, 1901.

* * *

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The several reputed causes of "puerperal eclampsia" will not be alluded to, but we are justified in regarding imperfect elimination, especially from disturbed action of the kidneys, as one of the factors in producing eclampsia. Hence the necessity of close attention to all of our pregnant patients and frequent urinalyses, instructions as to diet, and the use when indicated of salines, hydragogues, diuretics, and ferruginous tonics. Such care is essential especially with primiparæ, and when we have edema, headache, impaired vision, difficult deglutition, with flushed face and evident cerebral hyperemia with a full, tense pulse, we are on the border-land of great danger and in doubt as to procedure. In such cases veratrum viride has its chief value as a prophylactic agent to guard against eclampsia. Not only are its effects shown upon the vasomotor nerves by the reduced tension and frequency of the pulse, but its influence is also most apparent upon the cerebrospinal centers, so that nervous tension and excitability are relieved, and the skin and kidneys excrete more naturally.

The doses I have used are usually from seven to ten drops of "Norwood's tincture" of veratrum viride given at such intervals as will reduce the pulse to 64, and the influence of the drug is maintained with such doses at intervals, so that the pulse is kept near 70. This plan of treatment can be kept up for long periods, nor does it interfere with the use of other agents indicated. I have never observed any toxic effect. I believe that by such close attention to our cases we can avert in most instances the eclamptic seizure, but should convulsions occur we need not omit the veratrum viride, but supplement it with morphine hypodermically, the use of high rectal injections to cleanse the bowels and increase diuresis, then chloral hydrate by rectum, chloroform, hypodermoclysis. If relief is not obtained, then the propriety of emptying the uterus must be entertained. I have never observed any influence from veratrum viride as a dilator of the cervix.

CHARLESTON, S. C. T. G. SIMONS.

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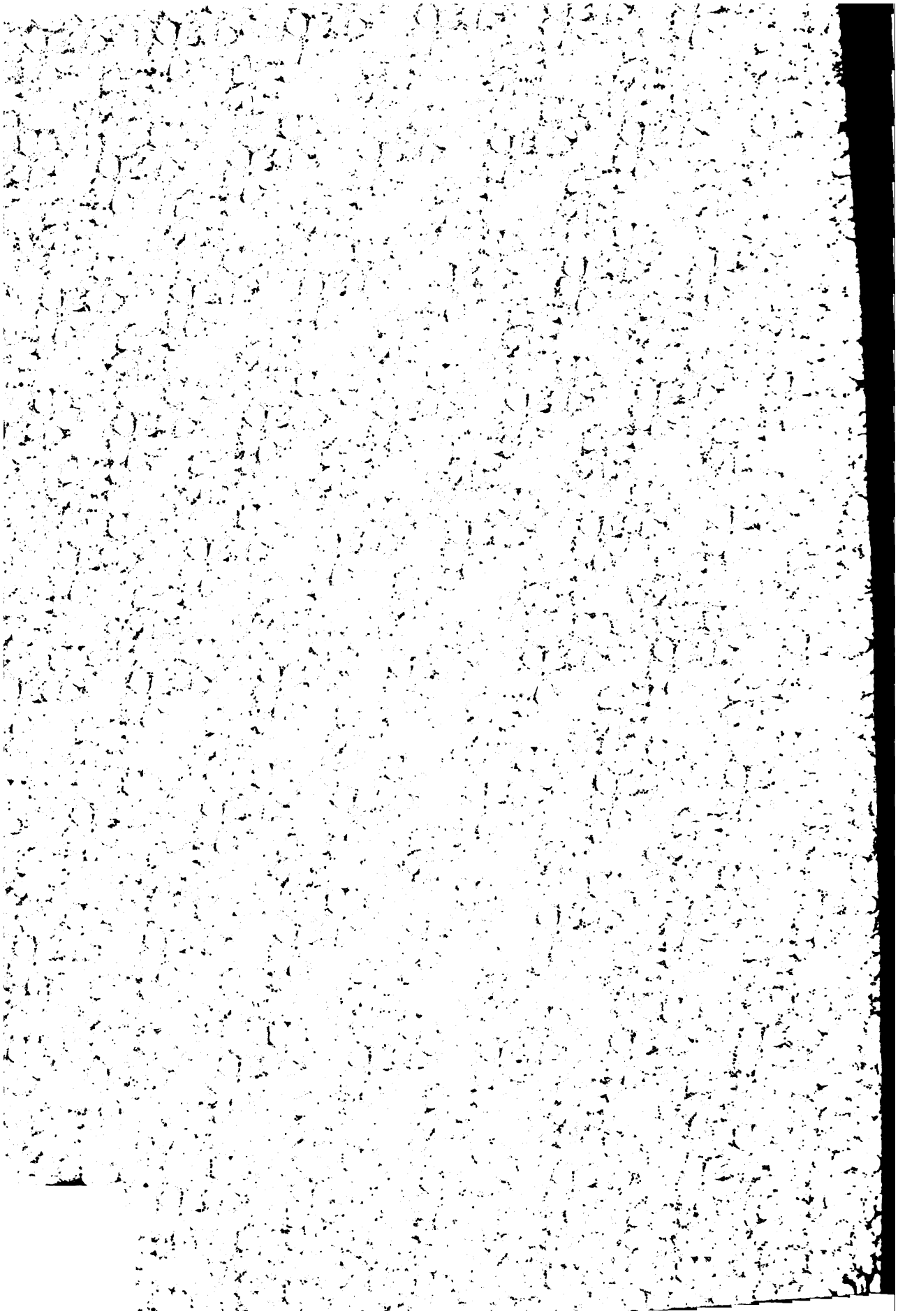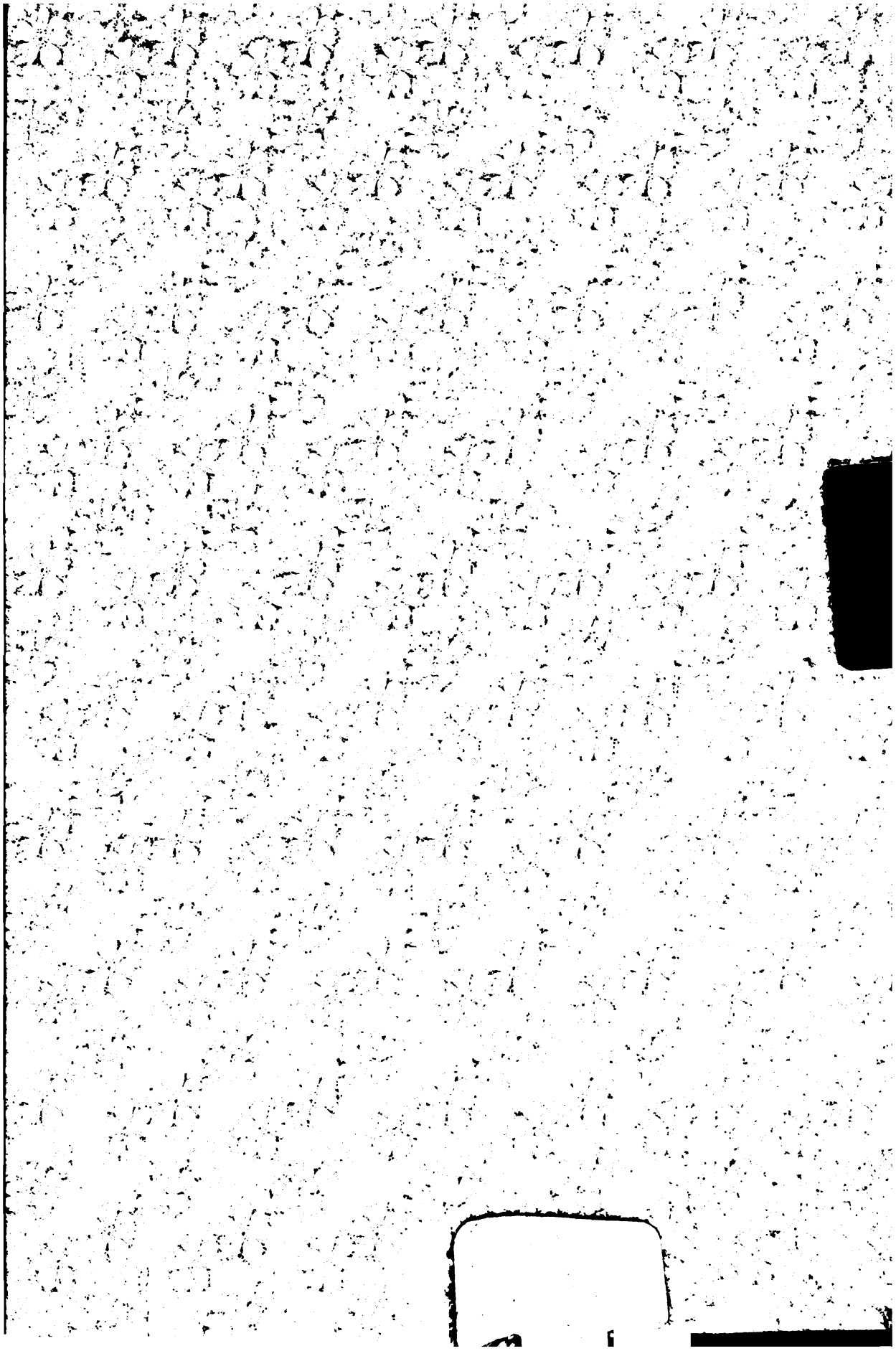
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